



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

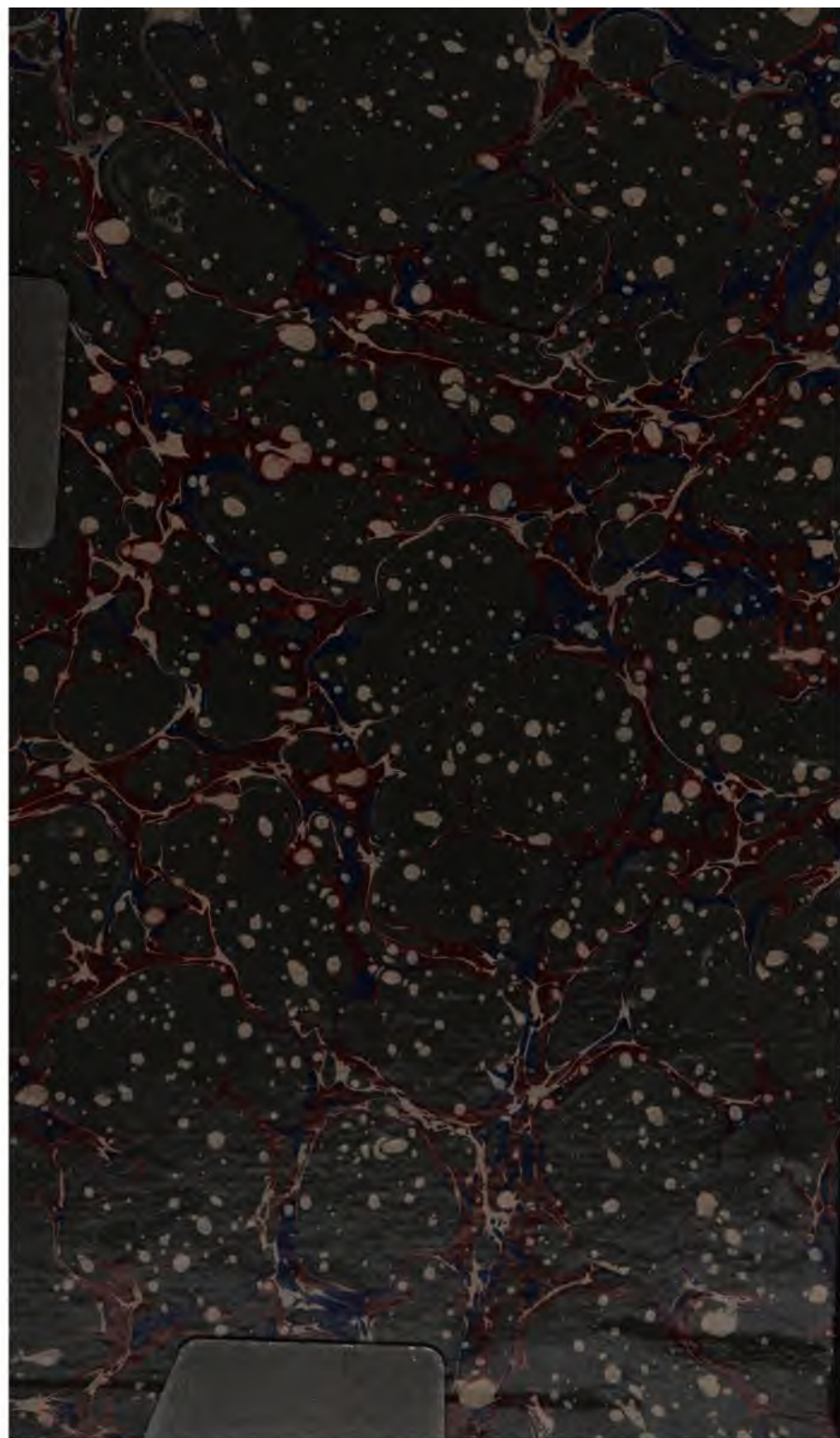
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

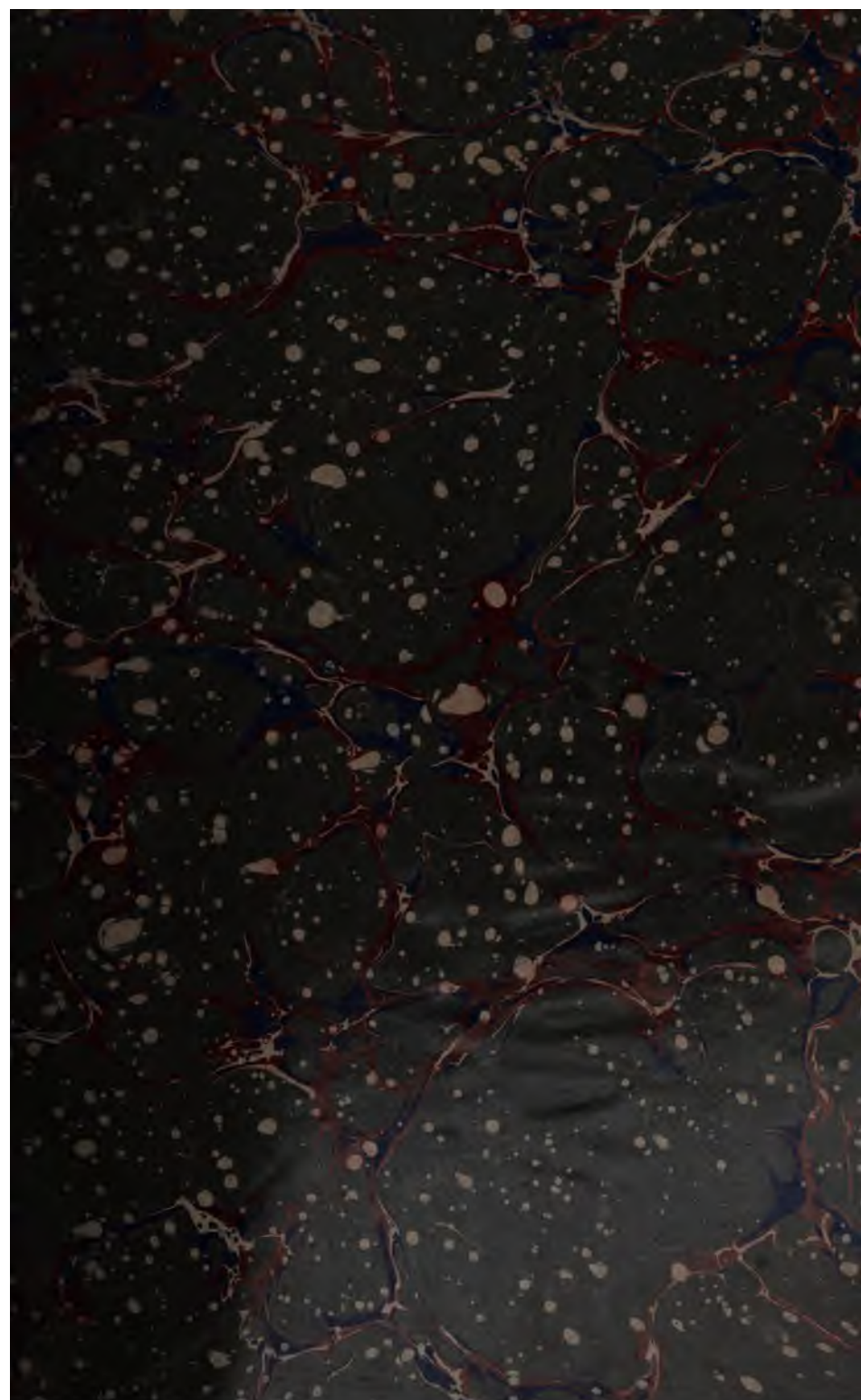
We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

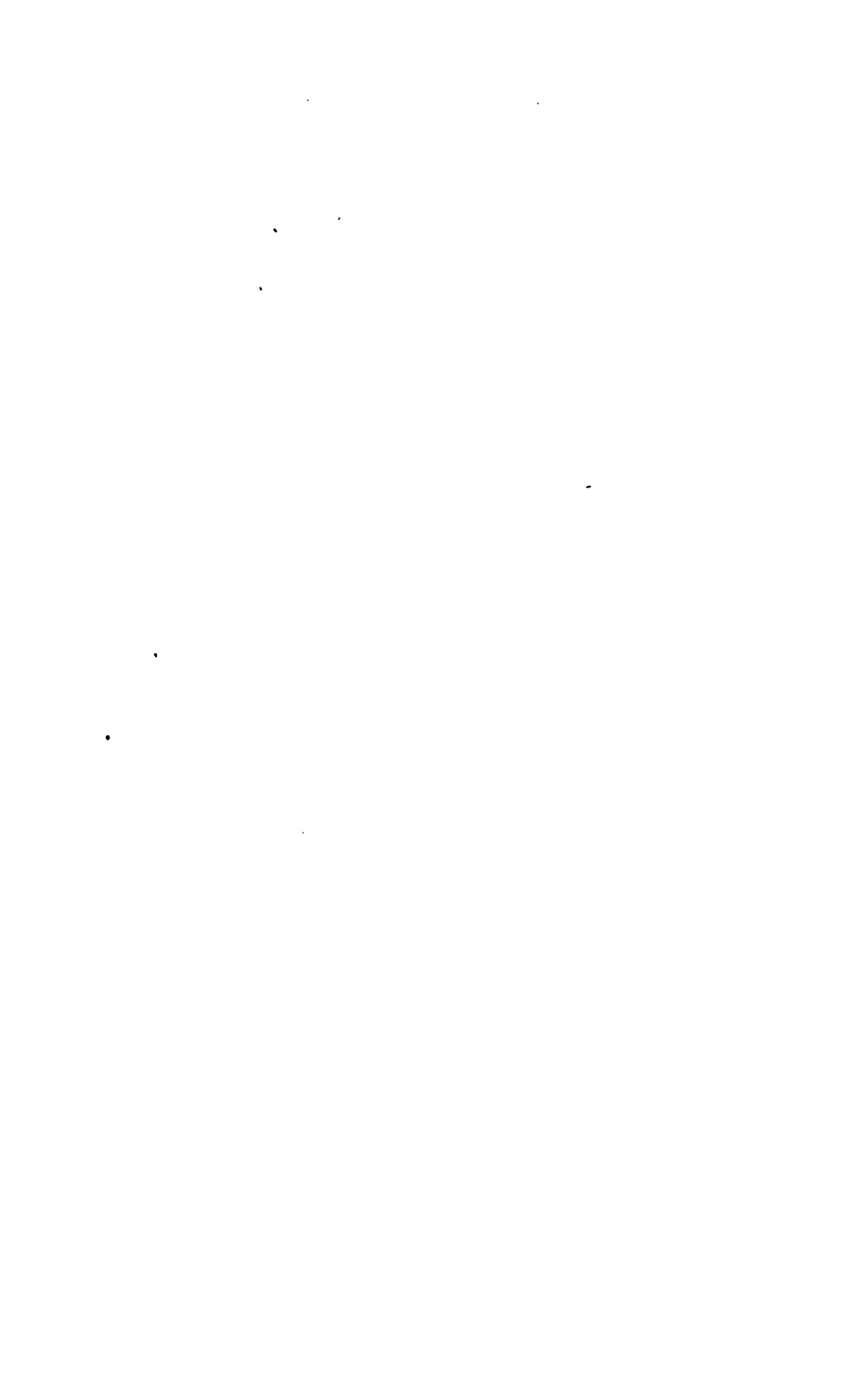
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>





895.705

E615



THE
ENTOMOLOGIST'S
MONTHLY MAGAZINE:

CONDUCTED BY

C. G. BARRETT, F.E.S. W. W. FOWLIER, M.A., F.L.S.

G. C. CHAMPION, F.Z.S. B. McLACHLAN, F.R.S.

J. W. DOUGLAS, F.E.S. E. SAUNDERS, F.R.S.

LORD WALSINGHAM, M.A., LL.D., F.R.S., &c.

SECOND SERIES—VOL. XIII.

[VOL. XXXVIII.]

"Try to learn something about everything, and everything about something."

Huxley.

LONDON:

GURNEY & JACKSON (MR. VAN VOORST'S SUCCESSORS),

1, PATERNOSTER ROW.

1902.

LONDON :

NAPIER, PRINTER, SEYMOUR STREET, EUSTON SQUARE, N.W.

MDCCCCH.



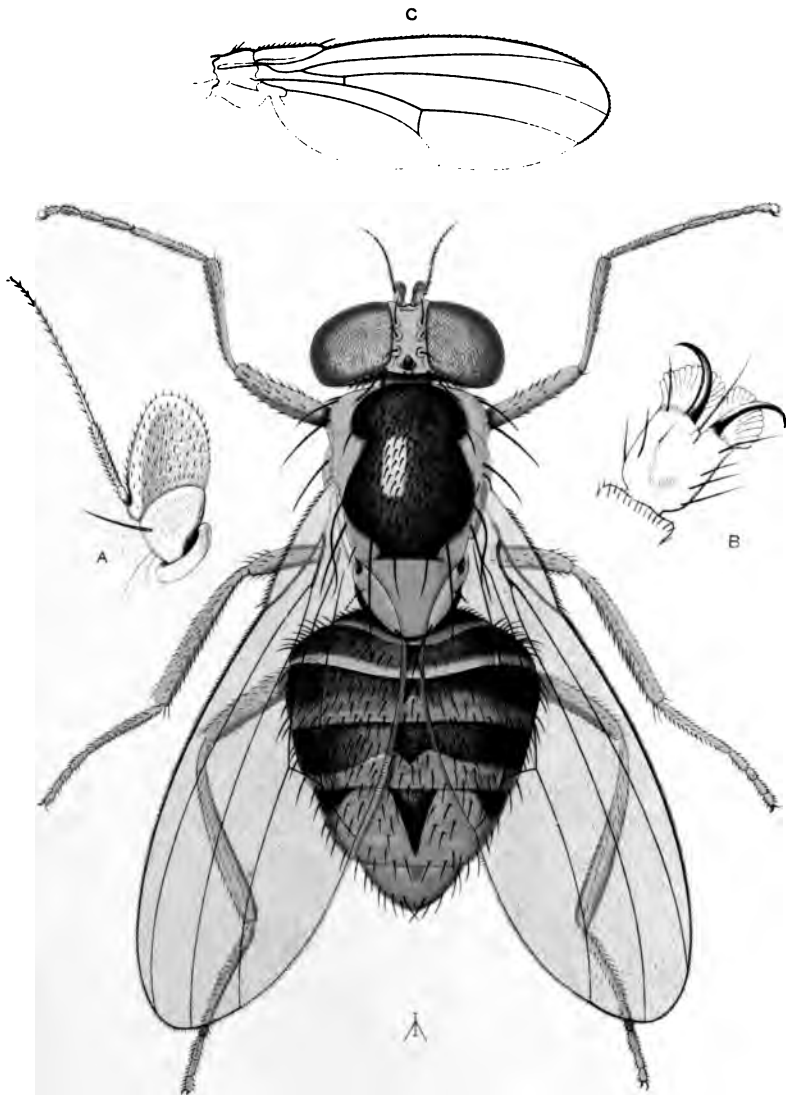
67544

LONDON :

NAPIER, PRINTER, SEYMOUR STREET, EUSTON SQUARE, N.W.

MDCCCCH.





Acletoxenus Syrphoides.

Edwin Wilson, Cambridge.

THE
ENTOMOLOGIST'S
MONTHLY MAGAZINE:

SECOND SERIES—VOL. XIII.

[VOLUME XXXVIII.]

NOTE ON *ACLETOXENUS SYRPHOIDES*, FRAUENFELD.

BY J. E. COLLIN, F.E.S.

(PLATE I.)

The genus *Acletoxenus* belongs to the subfamily *Drosophilinae* (as defined by Schiner) of the Acalyptrate *Muscidae*, and because of the absence of the nervure separating the second basal from the discal cell, and its bare arista, it approaches *Aulacigaster* and *Gitona*.*

In *Aulacigaster*, however, the middle cross-vein is considerably nearer the base of the wing, being opposite a point in the costa about midway between the humeral cross-vein and the end of the subcostal (first longitudinal) vein, and the head is differently shaped with a produced mouth-edge and only two pairs of fronto-orbital bristles; *A. rufitarsis* has two pairs of the outer dorsal row of bristles on the thorax, the front pair being about halfway down, no presutural bristle and only one sternopleural bristle. The absence of ocellar bristles and the continuation of the costa to the end of the discal (fourth longitudinal) vein, are characters common to both *Aulacigaster* and *Acletoxenus*.

In *Gitona* the middle cross-vein is opposite the end of the subcostal vein, and only separated from the outer cross-vein by a little more than the length of that cross-vein; it has strongly developed ocellar bristles and rather smaller eyes and consequently larger jaws.

ACLETOXENUS SYRPHOIDES, Frauenf., Verh. z.-b. Ges. Wien (1868), 152, 897.

♂ ♀. *Head* in profile semicircular, eyes occupying almost the entire side of

* It should be noticed that in Schiner's table on page xiii of his "Fauna Austriaca Diptera, II," the position of the words "488. Gatt. *Aulacigaster*. 269" and "492. Gatt. *Gitona*. 274" should be reversed [v. Frauenf., Verh. z.-b. Wien, xviii (1868) 151, note at the bottom of page].

the head, leaving practically no jowls; antennæ placed below the middle of the head. Face and frons of almost equal width and less than one-third the width of the head, face without the conspicuous keel of many *Drosophilinae*. Face, frons and first two joints of the antennæ whitish, slightly tinged with yellow, third antennal joint and proboscis a rich dull yellow, clypeus and palpi blackish. Three pairs of fronto-orbital bristles, the two upper pairs pointing backwards, the lower pair forwards; two pairs of vertical bristles, inner pair pointing backwards and parallel, outer pair pointing backwards and outwards; postvertical pair small, decussate, immediately behind the ocellar triangle; one pair of small vibrissæ; ocellar bristles absent.

Thorax shining black, with a clothing of short black hairs entirely confined to the black part of the disc; a patch extending from the humerus to the root of the wing and including the presutural bristle is of the colour of the frons, while the postalar callus and the large broad scutellum are a bright citron-yellow; pleuræ rather paler coloured than the scutellum; while the sternopleura, a round spot on pteropleura in front of, and a larger spot just below, the hypopleural spiracle, are black. There are one humeral, two posthumeral, one presutural, one supra-alar, one postalar, and four prescutellar bristles, which latter apparently represent the last of the inner and outer rows of dorsal bristles; there is also a second small bristle on the postalar callus near the basal corner of the scutellum, while there are four scutellar and two nearly equally strong sternopleural bristles.

Abdomen of the male as figured, but in the female the dark markings are not so extended, as the second segment has only a small dark spot in the middle, and one at each extreme side, while the third segment has only a central dark spot with faint indications of the rest of the band; and the dark markings on the fourth and fifth segments are not so extensive.

Legs of the same colour as the frons, and without pre-apical or any other bristles; the first joint of every tarsus rather longer than the other four joints together.

Wings as figured, quite clear. Mediastinal vein rudimentary, no nervure separating the second basal from the discal cell, anal cell small but obviously present. *Halteres* pale yellowish.

Frauenfeld bred this species from larvæ found among *Aleurodes phillyreae*, Hal., on *Crataegus*; while he also caught it on evergreen *Viburnum* trees infested with *Aleurodes Jelineki*, v. Frf. Mr. F. Jenkinson has recorded on p. 300 of this Magazine for last year his capture of this species at Cambridge.

SYNONYMICAL NOTE.

Meigen, in 1830, described an *Agromyza ornata*, his short description answering very well to our insect, and if he overlooked the presence of the small nervure separating the second basal from the discal cell, it might well be our species; but Prof. Brauer, has informed me that Schiner recognised Meigen's *Agromyza ornata*, there being a specimen so named by him in the Coll. Musei Vindobon., and that specimen is not *Acletoxenus syrphoides*.

Walker professed to recognise *A. ornata*, Mg., but his description can hardly be taken to refer to our insect, as he says:—"costal vein ending at the tip of the wing: præbrachial (discal) ending on the hind border at some distance from the tip," whereas in *A. syrphoides* the costa is continued to the end of the discal vein; also in his synoptical table he says:—"Discal transverse vein parted by very little more than its length from the præbrachial transverse, and by nearly twice its length from the border," which again does not suit our insect. In spite of this, and possibly because Walker gave his species as preying on *Aleurodes phillyreæ*, Haliday in writing to Frauenfeld, said:—"The species described by Walker appears identical with *Acletoxenus syrphoides*" (v. Frauenfeld, Verh. z.-b. Wien, xviii, 898), and caused Frauenfeld to give *A. ornata*, Wlk. (nec Mg.), as a synonym of his *Acletoxenus syrphoides*; though in the descriptions there seems to be far more evidence against Walker's *ornata* being a synonym than there is against Meigen's *ornata*. Apparently it was only through this synonymy that the name *A. syrphoides* was recorded in our British List.

Loew, in 1864, described a species as *Gitona formosa*, and his description applies wonderfully well to our insect; but he says the bristles on the frons are entirely as in *G. distigma*, whereas in *A. syrphoides* the ocellar bristles are absent, and he also says the venation is exactly the same as in *G. distigma*, whereas in *A. syrphoides* there are marked differences (v. Frauenfeld's figures, Verh. z.-b. Ges. Wien, xviii, 899).

Under these circumstances, only an examination of the original type specimens, or the capture of specimens answering more accurately to the descriptions, will settle the synonymy of this species; as a help to future students I may add that Prof. Brauer has failed to find the type of Meigen's *A. ornata* in the Winthem Collection at Vienna, so it may be in Paris; Mr. E. E. Austen cannot find Walker's specimens of *A. ornata* at the British Museum; Dr. Carpenter writes from the Science and Art Museum, Dublin: "after a good look at the Haliday *Drosophilines*, I have failed to find anything approaching your figure;" while Loew's type of *G. formosa* is probably in his collection at Berlin, but I have not been able to ascertain any particulars about it.

Sussex Lodge, Newmarket:

December, 1901.

A NEW SPECIES OF *MICROGASTER*.

BY CLAUDE MORLEY, F.E.S., &c.

MICROGASTER SUFFOLCIENSIS, *sp. n.*

Niger, pubescens; metanoto glabro, segmentis abdominis primo et secundo testaceis lateralis, his lineis duabus impressis, oblique ex angulis apicalibus versus medium basis ascendentibus instructa.

Head black, dull; labrum and palpi flavous, mandibles darker; clypeus circularly separated from the face, broadly rounded in front, sparingly punctate and diffusely pubescent; face punctate, covered with long scanty white hairs, longitudinally indistinctly carinated in the centre. Antennæ gradually attenuated from base to apex, pilose, the joints cylindrical; black, somewhat piceous beneath. Mesonotum shining, closely and finely punctate and pubescent; mesopleuræ brilliant, obsoletely punctate with scattered pubescence. Metanotum glabrous, broader than long, subrectangular; centrally canaliculate and transversely strigose. Scutellum very flat, brilliant, obsoletely punctate and pubescent. Abdomen subparallel-sided, dorsally deplanate, nearly smooth, with scattered white hairs; first segment slightly longer than broad, with strong raised testaceous lateral margins, each of which in its basal half bears about fifteen long white radiant setæ; these margins become broader apically, and are separated from the central area by a linear depression; central area basally depressed and glabrous, apically bifoveolate, subrugulose and pubescent; second segment subrugulose, with smooth central tubercle, thrice broader than long, obliquely impressed, and thus forming a triangle at the anterior angles, which is testaceous; third and fourth segments with distinct blue reflection in a strong light; ventral surface laterally more or less testaceous; terebra subexserted. Legs flavous; hind pair slightly inflated, with the tibiæ stramineous, calcaria and base of tarsal joints whitish; base of posterior coxæ, apex of hind tibiæ and tarsal joints, and extreme apex of hind femora, black. Wings hyaline throughout; tegula and costa testaceous, stigma piceous, nervures in part fuscous.

Length, ♀, 3½ mm. Wings, 8 mm.

This species appears to be intermediate between the Rev. T. A. Marshall's Sections 1 and 2 (*cf.* Trans. Ent. Soc. Lond., 1885, p. 238; et André's Spp. Hymenop. d'Europe, tomes 4 and 5); it agrees with the former in having the terebra short, the wings hyaline, and the size small; and with the latter in its broad, deplanate, basally rugose abdomen and slightly thickened hind legs.

Its nearest ally is probably *M. globatus* (? L.), Nees, with which it agrees in the rugulose basal segments, fuscous belly, and rufous femora; but it differs therefrom in the entirely pale palpi, abdomen ventrally testaceous at the sides, coxæ and trochanters more or less red, hind tarsi fuscous, with base of the joints broadly pale stramineous, mesonotum and pleuræ closely and finely punctate and nitidulous, and the calcaria, which are hardly half as long as the *metatarsus*.

The sculpture and colour of the first two abdominal segments, which bear a somewhat close resemblance to those of *M. tiro*, Reinh., and the annulation of the hind tarsi, are remarkable.

The type emerged from among larvæ of *Nothris verbascella*, S. V., in 1899. Mr. Frank Norgate, who has kindly presented me with the unique specimen, informs me he is not at all sure that it was parasitic upon that moth, but if so, it certainly emerged from the larvæ; the parasite's cocoon may, however, have been carried in among the food plant (*Verbascum pulverulentum*, Vill.), which, together with the larvæ, was found in Bury St. Edmunds, Suffolk.

Ipswich: November 1st, 1901.

STICTOCORIS FLAVEOLA, BOHM., AN ADDITIONAL SPECIES OF
BRITISH *CICADINA*.

BY JAMES EDWARDS, F. E. S.

STICTOCORIS FLAVEOLA, Bohm.

Thamnotettix flaveola, Boheman, Sv. Ak. Handl., 1845, 33, 9; Fieber, Cicad. d'Eur. (*Thamnotettix*), 96, 31. *Jussus (Athysanus) flaveola*, Flor, Rhyn. Liv., ii, 291, 9. *Stictocoris flaveola*, J. Sahlberg, Not. Fenn., xii, 259, 4.

♂. Upper-side deep yellow, inclining to orange, shining; the frontal sutures and a small spot at the base of each antenna, black. Crown as long as half its basal width, one-fifth longer in the middle than at the sides, its fore margin broadly rounded. Pronotum about one-fourth longer than the crown. Abdomen above black, with the sides narrowly yellow and the last segment yellowish-white, or black with the sides broadly, the last segment, and a row of subquadrate spots down each side, yellow: beneath yellow, with the sides narrowly, and an elongate triangular, more or less interrupted middle stripe, black. Genital valve a little shorter than the preceding segment, widely rounded behind; genital plates five times as long as the valve, their outer edges feebly sinuate towards their narrowly rounded apices. Legs deep yellow with a reddish tinge, the hind tibiae with an external series of black points.

♀. Pale sordid yellow, the black markings on the abdomen much reduced. Crown one-sixth longer than half its basal width, one-third longer in the middle than at the sides, its free margin broadly rounded. Pronotum about one-fourth longer than the crown. Last ventral segment about half as long in the middle as at the sides, the hind margin with a large rounded notch in the middle, the outer posterior angles rounded.

Length, 4-4½ mm.

I am indebted to the industry and good fortune of Mr. W. West for the opportunity of recording this addition to the British fauna; his specimens were taken in September amongst long grass in damp

places near London (Lee, Shooters' Hill and Kidbrook). I should add that my determination of the species has been confirmed by Dr. John Sahlberg.

Colesborne, Cheltenham :
December 5th, 1901.

SUFFOLK LEPIDOPTERA IN 1901.

BY THE REV. E. N. BLOOMFIELD M.A., F.E.S.

Two gentlemen, Mr. A. E. Gibbs, F.L.S., of St. Albans, and Mr. C. A. Pyett, of Ipswich, have both collected this summer in the same localities, Felixstowe and Bentley, near Ipswich. Mr. Gibbs has sent me a full list of species met with by him, with notes on their occurrence, and has authorized me to send the following account. His visit to Felixstowe extended from July 6th to August 5th; the whole of his collecting was done within a few miles of the town, with the exception of visits to the Bentley Woods on the 13th and again on the 23rd to the 25th of July.

Of the *Rhopalocera*, *Limenitis sibylla*, L., was very plentiful in the Bentley Woods, as was also *Thecla quercus*, L., which flew in clouds round some young aspens and oaks; *Lycæna argiolus*, L., was also common there. Of the *Heterocera*, *Calligenia miniata*, Forst., and *Limacodes testudo*, W. V., were taken at Bentley. *Porthesia chrysorrhæa*, L., a single specimen at light, and *Arctia villica*, L., at Felixstowe. The latter occurred also at the Orwell Woods. Many larvæ of *P. chrysorrhæa* were taken at Felixstowe by a friend of Mr. Gibbs.

The *Noctua* were in abundance at Felixstowe, and many interesting species were met with. *Mamestra subjecta*, Hb., *M. albicolon*, Hb., *Acronycta aceris*, L., *Agrotis ripæ*, Hb., *Aplecta advena*, W. V., *Hadena suasa*, W. V., and *Heliothis marginata*, F., all occurred, none of them singly, while long series of *Agrotis palligera*, W. V. (*vestigialis*), *A. nigricans*, L., and *A. tritici*, L., were taken, including many nice varieties. *Apamea oculea*, F., was also very abundant at Bentley and Felixstowe; some of its varieties were very much like *A. ophiogramma*, Esp. A specimen of this latter species was taken by Mr. Pyett, in Ipswich, at light. *Thyatira batis*, L., *Cymatophora or*, W. V., *Xylophasia scolopacina*, Esp., *Noctua rhomboidea*, Tr. (*stigmatica*), and *Orthosia suspecta*, Hb., were all met with at Bentley Woods.

The *Geometra* were not so well represented; *Acidalia trigeminata*, Haw., occurred at the Bentley and Orwell Woods; this species, which is usually rare, is far from uncommon in East Suffolk; *Macaria notata*, L., was in good quantity at Bentley, July 13th, while *Acidalia emutaria*, Hb., at Felixstowe, and *Coremia quadrifasciaria*, L., at the Orwell Woods, complete the list of the better *Geometra*.

The *Pyralides* were in fair numbers; *Cledeobia angustalis*, W. V., was locally plentiful near Felixstowe, where also occurred *Scoparia lineola*, Curt., and *Pyralis fimbrialis*, W. V., the latter species was abundant this year at Ipswich, as was also *Endotricha flammealis*, W. V.; two specimens of the rare *Spilodes palealis*, W. V., were taken at Felixstowe, one at light, the other on the cliffs, and *Ebulea verbascalis*, W. V., at Bentley.

The *Crambi* were represented by several interesting species, *Crambus pinetellus*,

L., at Bentley and Felixstowe, *C. falsellus*, W. V., and *C. contaminellus*, Hb., the latter plentifully. Also at Felixstowe, *Anerastia lotella*, Hb., *Homœosoma sinuella*, F., in fair quantity, and *Nyctegretes achatinella*, Hb.; to these may be added *Rhodophaea formosa*, Haw., in the Orwell Woods, and last, though not least, **Melissoblaptes bipunctatus*, Zett., of which a nice series was taken when sugaring at Felixstowe; most of them were at rest on palings near the patches of sugar, but two of them were settled in the daytime on a tarred shed on Landguard Common.

A few of the rarer *Tortrices* may be mentioned: **Tortrix cratægana*, Hb., **Euchromia purpurana*, Haw., and *Olindia ulmana*, Hb., all at Bentley.

The *Tineæ* were not much collected. The best were *Dasycera Olivierella*, F., and *Ecophora lunaris*, Haw., at Felixstowe; this latter species, Mr. Pyett tells me, is common at Ipswich. Several specimens of *Gelechia celerella*, Dougl., were taken at sugar at Felixstowe. This species and *Depressaria badiella*, Hb., were specially in evidence one windy evening when very little else was stirring. These captures are very interesting, as it was on a specimen of *G. celerella*, taken at Lowestoft, in July, 1871, that Mr. Stainton introduced *Gelechia strelitzella*, H.S., into our lists. This latter, however, has not yet been met with in Britain. The species marked * are new to the Suffolk list.

Mr. C. A. Pyett has met with the following species new to the County: *Leioptilus osteodactylus*, Zett., one at light at Ipswich; *Penthina corticana*, Hb. (*picana*, Fröl.), and *Stigmonota nitidana*, F. (*redimitana*, Gn.), both at Bentley Woods. *Conchylis dilucidana*, Steph., on the cliffs at Felixstowe; and *Tinea merdella*, Zett., and *T. nigripunctella*, Haw., both at Ipswich, the first in plenty in the Lecture Hall, the second on the door posts of the Hospital.

Guestling: November, 1901.

The Walsingham Collections.—With a view to avoid misconception and enquiry, it may be well to state for the information of our readers that by a Deed dated November 23rd, 1901, between the Trustees of the British Museum and myself, all my collections of *Micro-Lepidoptera* have now become the property of the Trustees, upon the condition that I am to retain them in my care and custody so long as I may desire to do so.

This will in no way interfere with the study or improvement of the collections during my lifetime, but will rather enhance the interest with which I shall endeavour to render them as complete as possible.—WALSINGHAM, Merton Hall, Thetford: November 23rd, 1901.

Ophiodes lunaris in Delamere Forest.—While sugaring at Delamere Forest on June 1st this year, one *Ophiodes lunaris* was taken by Mr. T. Wright, of Warrington. Mr. Wright is a new beginner, and did not know what his capture was till the end of the season, when he had it named for him.—A. G. WALLINGTON, 10, Arthur Street, Warrington: December, 1901.

Re-occurrence of Atherix crassipes, Meig.—I went to Ticehurst again last July in search of this Dipteron, and found it not uncommonly (both sexes) in the same locality as before (cf. Ent. Mo. Mag., 1901, p. 10).—H. W. ANDREWS, Eltham: December 13th, 1901.

List of British Diptera, Edition II.—I expect the advertisement will appear on the wrapper of the issue of this Second Edition, and consequently to anticipate criticism let me admit that I had overlooked Meade's Descriptive List of the British *Anthomyidæ* which was published by Gurney and Jackson in 1897.

In this List the following species were included which are omitted by me:—*Hyetodesia vagans*, Fln., *Mydæa longitarsis*, Meade, *Phorbia humerella*, Zett., *P. trapezoides*, Zett., *Pegomyia setaria*, Wdm., *P. tenera*, Zett., *Hydrophoria fusca*, Meade, while *Pegonomyia alpicola*, Meade, is renamed *P. Meadei*, Pokorný.

I do not admit the validity of any of these species, as they are all unknown to me, and may very probably be synonyms of species which are in my List, but I ought to have noticed them.

I may mention here that, although Meade sank his *Hydrotæa parva* as a synonym of *H. glabricula*, I have had numerous specimens of both (quite distinct) species, which have been captured in 1901.—G. H. VERRALL, Sussex Lodge, Newmarket: December, 1901.

The galls of Oligotrophus annulipes.—These remarkable *Cecidia* have apparently been more than usually common this year. Some magnificent specimens have been sent to the Museum by Miss Jenkinson from Woodhay in Berkshire, and it has been noticed by myself and others in the New Forest on the beech leaves. In the Woodhay specimens there were as many as twenty galls on a leaf, and on some of the twigs nearly every leaf bore one or more galls. The figures given by Kieffer (Ann. Soc. Ent. France, lxi, pl. 42) agree with our British specimens. The *Cecidomyiid* that produces the gall stands in Mr. Verrall's list of British *Diptera* under the name of *Hormomyia piligera*, Lw., but according to Kieffer it should be known as *Oligotrophus annulipes*, Hart. Kieffer's memoir is a very valuable production, but his instructions for mounting and for rearing *Cecidomyiidae* do not appear to me to be up to the mark, and are in fact very discouraging.—D. SHARP, Cambridge: November 1st, 1901.

The Castelnau Collection—Carabidæ: a correction.—In my brief note on this collection of *Coleoptera* (Ent. Mo. Mag., 1901, p. 144) there is an error that Dr. Gestro has pointed out to me. I said that the *Carabidæ* were purchased by the late Edwin Brown. This is a mistake. The *Carabidæ* were purchased by Marquis Doria and presented to the Genoa Museum. It was the *Cicindelidæ*, not the *Carabidæ*, that Mr. Brown acquired.—ID.

Coleoptera at Briton Ferry, South Wales.—While at Cardiff about the middle of July, on business, I managed to get two or three hours' collecting on the sandhills and the sandy shore near Briton Ferry. On the shore itself I obtained *Nebria complanata*, L., *Cicindela maritima*, Dej. (as the day was very windy these insects proved very difficult to catch), and *Dyschirius politus*, Dej. On the sandhills the following were obtained:—*Nacerdes melanura*, L., *Cteniopius sulphureus*, L., *Serica brunnea*, L., and *Anomala Frischi*, F.; all were crawling about on the bare sand, except *Cteniopius*, which was found under a stone.—G. T. HUDSON BEARE, 2, Heriot Road, Edinburgh: October 31st, 1901.

Coleoptera near Cromer, &c.—During my summer holidays at Roughton, near Cromer, from August 20th to September 9th last, I did a little collecting at odd times, and managed to find a few local beetles. In moist spots on the broken cliffs at Overstrand, *Tachypus pallipes*, Duft., *Bembidium nitidulum*, Marsh., *B. affine*, Steph., *Stenus guttula*. Müll., and *S. pusillus*, Er., were all fairly common, except the last; *T. pallipes* is a very handsome insect, as it runs quickly to and fro in the sunshine on the muddy ground, and I was very glad to meet with it in fair numbers. Digging in the cracked clay banks of the cliff brought *Nebria livida*, F., to light, and I secured a good series; from my experience it evidently occurs at suitable places in these clay cliffs all round the coast of the north-east corner of Norfolk, but it was only to be secured by breaking up the split face of the banks—I saw none in the open. In consequence of the long drought I found scarcely anything worth taking in the fields round the village of Roughton; sweeping and searching under stones were both equally unproductive. Two afternoons were spent in the Broads, between Wroxham and Horning, and here again insect life was very scarce, a series of *Bradycellus placidus*, Gyll., and *Psammæchus bipunctatus*, F., under a heap of cut reeds, with *Patrobis excavatus*, Payk., *Carabus granulatus*, L., *Oodes helopioides*, F., and *Chrysomela staphylæa*, L., all very scarce, are the only things worth mentioning. The soil is so light and sandy in this corner of Norfolk that a continued spell of hot dry weather seems absolutely fatal to beetle life.—ID. : December, 1901.

Trigonogenius globulum at Hoylake.—Amongst one or two batches of the little "spider beetle" *Niptus hololeucus* lately kindly collected for me by Mr. J. H. Jennings of this township, occur three specimens of this recent addition to our list of imported *Coleoptera*. One of the insects was taken crawling in the bath, and the other two found amongst empty medicine bottles in a cupboard in the chemist's shop beneath. For former representatives of this distinctive little Serricorn species I am indebted to my friend Mr. Brockton Tomlin, who received it during 1900 from Oldham, where it occurred not uncommonly in flour mills in that part of Lancashire. The facts of its appearing in a different habitat, and being an addition to the Cheshire County List, is of sufficient interest, however, to warrant its present occurrence at Hoylake being placed on record.—E. J. BURGESS SOFF, Saxholme, Hoylake : November 17th, 1901.

Orthoptera at Redhill.—I learn from Mr. G. Frisby that he has taken *Stenobothrus lineatus*, Panz., and *Gomphocerus rufus*, L., near Redhill this year and last, the *Gomphocerus* was in good numbers in 1900, but appeared rather scarce this year; on the only occasion Mr. Frisby was able to search for it the *Stenobothrus* was met with far more sparingly in both years: the only other species met with were the common *Stenobothrus bicolor*, Charp., *S. parallelus*, Zett., and *Gomphocerus maculatus*, Thunb.—E. N. BLOOMFIELD, Guestling : November, 1901.

Aërophilus Bonnairei on the North Devon coast.—Readers of your Magazine may be interested in learning that I have taken this interesting insect during the past summer on the North Devon coast, between Barnstaple and Ilfracombe. It seemed, however, far from plentiful.—W. B. WATERFALL, Bristol : Nov. 30th, 1901.

Apatania muliebris, McLach., in Lanarkshire.—During the last ten years I have had occasion during the month of May to pay several flying visits to a locality in South Lanarkshire situated at the foot of a hill called Tinto (about 2400 feet). Almost every time I have taken a single specimen of an *Apatania* at a clear rill running alongside the road, such a little perennial watercourse as one frequently finds in districts where hill-side springs are numerous. The examples taken were always ♀, and as *Apatania Wallengreni* has been recorded from streamlets in the Kilpatrick Hills, I considered that my captures were that species, and I did not critically examine them. A good many ♀ examples of *Apatania* (unaccompanied by ♂) recently came into my hands from Arctic Norway, where they were collected by Herr Strand. The genus is one in which the species much resemble each other in general facies, and while the ♂ genitalia have strong distinctive characters, in the ♀ the abdomen has a tendency to shrivel, causing the species in many cases to be practically indeterminate from dried examples in that sex. To see if a more intimate knowledge of the true structure of the apical abdominal segments could be obtained, I prepared a number of bodies as microscopical objects, and as these disclosed some rather remarkable points of internal structure, I was led to prepare in the same way females of all available species of the genus, including the Tinto insect. A glance at the preparation of the last named showed something absolutely different from *A. Wallengreni*, and a beautiful preparation from an example of *A. muliebris* from the original Arundel locality (kindly provided specially by Mr. McLachlan) unmistakably proves that the South Lanarkshire insect is also *muliebris*. On the internal structure already alluded to, *muliebris* is more widely separated from the other members of the genus known to me than these are from one another; but on the subject I shall say more at another time. The precise locality in South Lanark will probably in these days of improvement be ere long improved out of sight, but in such a water producing district a careful search will no doubt discover other localities for the *Apatania*.—KENNETH J. MORTON, 13, Blackford Road, Edinburgh: December, 1901.

Notes on Rhogas circumscriptus, Nees.—In July, on "Cress," I found, head downwards, in a perpendicular position the dead larva of a *Noctua*, most probably one of the *Caradrinæ*, which at first sight appeared to be simply resting from its feeding, but a curious opaqueness of the tegument caused me to examine it more carefully; I then discovered that the skin, which had a very distinct lateral border, was inflated to its fullest capacity and that it was fastened to the leaf by some viscous substance so firmly that it required considerable force on my part to tear it away, and even then it was only the leaf that was rent and not the viscous matter. The larva was fixed only at the under-side of the head and second segment, the two hind pairs of legs and all the prolegs being distinctly visible and in no way attached to the leaf, but the first pair of legs were concealed in the solidified adherent substance. The anterior segments were much contracted and transversely wrinkled, and the thirteenth was shrivelled up with the anal prolegs, consisting of a mere membrane protruded horizontally. Soon afterwards (July 24th) a Braconid which my friend Mr. Claude Morley, of Ipswich, informs me is referable to *Rhogas (Aleiodes) circumscriptus*, Nees, emerged through a large irregularly circular hole gnawed by the imago through the dorsum of the eleventh and twelfth segments.

Upon opening the deserted skin, I found the parasite had woven for itself a greyish, white silken lining and left white exuviae in the second segment, with what might have been its white pupal skin.

Mr. Morley informs me these notes entirely coincide with those of the Rev. T. A. Marshall (Mon. Brit. Bracon.), excepting in the particular of attachment. The latter writes "these larvæ after death continue to cling to their food plant," whereas in the present instance and in others that have passed under my friend's notice, they are invariably agglutinated thereto in the remarkable manner above described. Unlike most Hymenopterous parasites they emerge sometimes before their host is full fed.

This species has been bred from *Melanippe galiata*, *Teniocampa stabilis*, *Cucullia verbasci* and *Ebulea crocealis*; and on the continent from *Anticlea rubidata*, *Eupithecia castigata*, *Agrotis agathina*, *Caradrina alsines*, *Noctua baja*, *Tortrix rosana*, and *Dictyopteryx Holmiana*.

Mr. Morley has taken it at Ipswich, Nacton, Easton Broad, Foxhall and Needham, Suffolk; at Eaton, Norfolk; and has received it from Bury St. Edmund's and Finborough Park, Suffolk; from Giffnock and Deal, from May to October. Mr. Marshall says the imago has been found hibernating in birds' nests at Haarlem in January.

Since writing the above, I have been informed by Mr. Morley that he has bred a species of *Mesochorus* from a larva skin containing the pupa of *Rhogas circumscriptus*, found on grass near the falls of the Shin, Inveran, Sutherlandshire, in October, 1900.—H. J. CHARBONNIER, Redland, Bristol: November, 1901.

Hymenoptera Aculeata at Criccieth, Lyndhurst and Newquay.—Early in the spring of this year I paid a visit to Criccieth with my friend Mr. W. Gardner in the hope of capturing the ♂s of *Osmia xanthomelana*, Kirb., and *parietina*, Curt. In this we were successful, the males of the former being in fine condition and fairly abundant. Of the latter, however, only two were taken, and no cells could be found, which was a great disappointment, as we had hoped to find these and learn a little of their habits. The flower of *Lotus corniculatus* seemed to be the only one that had any attractions for them.

At Lyndhurst, during a short stay in May, I again captured *Melecta luctuosa*, Scop., flying along the banks of the rides. It is curiously difficult to see and appears to be very local. I twice noticed it on the flowers of *Cynoglossum officinale*. Amongst other *Aculeates* taken were *Andrena lapponica*, Zett., fairly abundant on the flowers of *Vaccinium*, all more or less worn, *Osmia pilicornis*, Sm., *leucomelana*, Kirb., *Sphæcodes rubicundus*, v. Hag., ♂, *Nomada flavoguttata*, Kirb., *bifida*, Thoms.

The whole of the month of July I spent at Newquay, following Mr. Rothney's suggestions in vols. 34 (page 41), 35 (page 14). In those volumes he gives interesting lists of *Aculeates* taken during August and suggests at the same time that perhaps the month of July might give better results, especially as regards the *Fossoræ*. Many of the following insects appeared in great abundance, especially those belonging to the genera *Salix*, *Ammophila*, *Cerceris*, *Epeolus* and *Calionys*. No *Nomadas* were seen, though other parasites were far more numerous than their hosts. The following is a complete list observed on the coast within three miles of Newquay; the localities are mentioned when that distance was exceeded.

Formica fusca, Latr.; *Lasius fuliginosus*, Latr., *niger*, Linn., *flavus*, de Geer; *Tetramorium cæspitum*, Linn.; *Myrmica rubra*, Linn.; *Myrmosa melanocephala*, Fab., ♂s, ♀s; *Methoca ichneumonides*, Latr., ♀s (Perran Porth); *Sapyga quinquepunctata*, Fab.; *Pompilus rufipes*, Linn., *cinctellus*, Spin., *niger*, Fab., *approximatus*, Sm., *plumbeus*, Fab., *chalybeatus*, Sch., *gibbus*, Fab., *unguicularis*, Thoms., *pectinipes*, V. de Lind.; *Salix affinis*, V. de Lind., *pusillus*, Sch.; *Ceropales maculatus*, Fabr.; *Tachytes pectinipes*, Linn.; *Trypoxylon figulus*, Linn.; *Ammodiplosa sabulosa*, Linn., *hirsuta*, Scop.; *Pemphredon lugubris*, Latr., *lethifer*, Shuck.; *Gorytes tumidus*, Panz.; *Nysson dimidiatus*, Jur.; *Mellinus arvensis*, Linn.; *Cerceris arenaria*, Linn., *labiata*, Fab.; *Oxybelus uniglutinis*, Linn., *mucronatus*, Fabr. (Holywell Bay); *Crabro leucostomus*, Linn., *elongatus*, V. de Lind., *Wesmaeli*, V. de Lind., *dimidiatus*, Fab., *cephalotes*, Panz., *cribrarius*, Linn., *vagus*, Linn., *albilabris*, Fab.; *Entomognathus brevis*, V. de Lind.; *Vespa sylvestris*, Scop.; *Odynerus pictus*, Curt., *parietum*, Linn., *trimarginatus*, Zett.; *Colletes fodiens*, Kirb., *picistigma*, Thoms., *marginata*, Sm.; *Prosopeia hyalinata*, Sm., *brevicornis*, Nyl., *Sphecodes gibbus*, Linn., *hyalinatus*, Sch., *Halictus rubicundus*, Chr., *leucozonius* Schr., *cylindricus*, Fab., *tumulorum*, Linn., *nitidiusculus*, Kirb., *Smeathmanellus*, Kirb.; *Andrena pilipes*, Fab., *bimaculata*, Kirb. (Perran), *rosæ*, Panz. (Perran), *thoracica*, Fab., *Gwynana*, Kirb., *nigriceps*, Kirb., *simillima*, Sm. (Perran), *fulvicrus*, Kirb., *fulvago*, Chr., *similis*, Sm., *Wilkella*, Kirb., *Afzeliella*, Kirb.; *Cilissa leporina*, Panz.; *Panurgus ursinus*, Gmel.; *Dasygaster hirtipes*, Latr.; *Epeolus productus*, Thoms.; *Calioxys vectis*, Curt., *elongata*, Sep., *acuminata*, Nyl.; *Megachile maritima*, Kirb., *centuncularis*, Linn., *argentata*, Fab.; *Osmia fulviventris*, Panz., *aurulenta*, Panz.; *Anthidium manicatum*, Linn.; *Anthophora furcata*, Panz., *quadrinaculata*, Panz.; *Saropoda bimaculata*, Panz.; *Psithyrus vestalis*, Fourc., *campestris*, Panz., *Bombus venustus*, Sm., *agrorum*, Fab., *Latreillellus*, Kirb., var. *distinguendus*, Mor., *hortorum*, Linn., var. *Harrisellus*, Kirb., *lapidarius*, Linn., *pratensis*, Linn., *terrestris*, Linn.

The partiality of *Anthophora quadrinaculata* for the flower of *Lamium purpureum* was most marked. Two small patches of this plant occurred on the coast within one or two miles of Newquay and they were rarely passed without two or three specimens being seen on them; they apparently visited no other flower. A large colony of *Andrena pilipes* on the top of Porth Island was so near the edge of the cliff that the spray from every rough sea soaked the ground and denuded it of all plant life. The burrows were vertical and so close together that the 15 ♂s and 17 ♀s were dug out from about six square inches of cliff.—E. B. NEVINSON, 3, Tedworth Square, Chelsea: December, 1901.

Review.

MONOGRAPH OF THE COCCIDÆ OF THE BRITISH ISLES: by ROBERT NEWSTEAD, F.E.S., &c. Vol. i. Pp. xii and 220, 8vo. Plates A—E and i—xxxiv. London: Ray Society. 1901.

Before our venerable colleague Mr. Douglas (now in his 88th year) commenced his series of articles in 1881 in this Magazine, little attention was paid to British Coccida, and abroad there was little else than Signoret's "Essai." It is needless to

point out how all this has become changed. In this country the progress has culminated in the appearance of the 1st volume of Mr. Newstead's Monograph now before us. No one could have been found better able to undertake this task. Comparatively young, enthusiastic and conscientious, laborious and nearly wholly self taught, he has also the advantage that in early life he occupied the position of a practical horticulturist, for almost any work on *Coccidæ* appeals nearly equally to the entomologist and the horticulturist. Most of the plates, except those wholly devoted to details, are coloured. Mr. Newstead's method of working is well known to our readers and needs no explanation, but we must draw attention especially to two economical subjects here treated upon, viz., the destruction of *Coccidæ* by birds, and their destruction or control by various insecticides. This work should be widely circulated; vol. ii should be even more interesting, inasmuch as it will deal largely with the forms secreting a cottony coating.—R. McL.

Obituary.

Henry Wyndham Vivian, M.A., F.E.S., of Glensafon, Port Talbot, Glamorgan-shire, died at Ste Cecile, Belgium, on November 17th, 1901, aged 33, having been born in 1868. He was the eldest son of Mr. A. Pendarves Vivian by his first wife, Lady Augusta Emily, daughter of the third Earl of Dunraven, and married in January, 1899, Lady Maude Clements, daughter of the fourth Earl of Leitrim, who, with his one daughter, survives him. He was educated at Eton and Cambridge, where he graduated in honours, was a J.P. for the County of Glamorgan, and a Major in the 2nd Volunteer Battalion of the Welsh Regiment.

One of the most amiable men whom it has been the writer's good fortune to have as a friend; he was exceptionally clever and intelligent, and his loss is deeply deplored by his relatives and all who knew him intimately. Like many other good Entomologists who have not left much record of themselves in print, he studied his favourite subjects more for the sake of the pleasure and interest which they afforded him than with a view to publication of any sort. It is from this cause, and not from any lack of knowledge or ability, that his published writings, which are scattered through the Ent. Mo. Mag. and other Magazines, are not more numerous. What there is, is good. His energy in collecting was inexhaustible, and was not infrequently too much for his health, which was never very strong. In spite of his height of 6 ft. 4 in., he was remarkably active and sure-footed, and in a rough and rocky place like Portland there were few who could keep up with him.

His collection of *Macro-Lepidoptera* contains many rarities and fine series, and will probably be presented to some Museum. He was very fond of all branches of Natural History, and in the last few years took a fine series of beautiful photographs of birds' nests and eggs in many localities, which deserve publication.

He had suffered for many months from a lingering illness, which incapacitated him from all his favourite pursuits, but which he bore with the utmost patience and cheerfulness. He went abroad for his health last May, and had seemed to get better, but the end came somewhat suddenly. He joined the Entomological Society of London in 1889.—N. M. RICHARDSON.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *October 21st, 1901.*—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

Mr. R. C. Bradley exhibited *Anthrax paniscus*, males and females, taken last August at Criccieth, N. Wales, in dull weather. Mr. G. W. Wynn, a collection of *Lepidoptera* made at Wyre Forest at sugar on two consecutive evenings only, June 23rd and 24th last; he was unusually successful, the moths being in great numbers on every patch of sugar, they included *Thyatira batis*, L., *Habrosyne derasa*, L., *Cymatophora duplaris*, L., *C. fluctuosa*, Hb. (1), *C. or*, F., and *C. octogesima*, Hb. (1), *Acronycta leporina*, L., *Hadena hepatica*, Hb., *H. sordida*, Bkh., *Agrotis exclamationis*, L. (fine varieties), *A. cinerea*, Hb., *A. prasina*, F. (*herbida*, Hb.), *Mamestra tincta*, Brahm, *M. contigua*, Vill., *Boarmia luridata*, Bkh. (*extersaria*, Hb.). Of these, *C. duplaris*, *B. luridata*, *M. contigua*, and *M. tincta* were common, the last named being a perfect nuisance. Apropos of *A. cinerea*, he said that he took one female, which in his experience was much rarer than the male, and he had never seen it at sugar before, though he had taken the males. Mr. C. J. Wainwright, a specimen of *Protopara convolvuli*, L., which had been sent to him from Wiltshire. Mr. H. W. Ellis, *Coleoptera*, as follows: *Silpha sinuata*, from Bewdley, *Galerucella tenella*, *Hydrochus elongatus*, and *Bagous cylindrus*, all from Bedfordshire, the latter species in some numbers. Mr. J. T. Fountain, *Pieris Daphidice*, L., from Jersey, taken in August last; a bred series of *Selenia lunaria*, Schiff., both spring and autumn forms for comparison; and a series of *Ennomos quercinaria*, Hufn. (*angularia*, Hb.), bred from a Brockenhurst ♀. Mr. A. D. Imms, *Machilis maritima*, one of the *Thysanura*, and *Anurida maritima*, one of the *Collembola*, both from Port Erin Bay, Isle of Man, August, 1901. The former was common on the rocks and cliff face, &c., and also came into the Biological Station in numbers, and occurred all over the house; the latter was common between tide marks in rock pools, &c. Mr. G. T. Bethune-Baker, a drawer full of *Cænonympha* from many localities, including a good series of *Tiphon*, Rott. (*davus*, F.), var. *philoxenus*, Esp. (*Rothliebi*, Stgr.), from Witherslack and Chartley Moss, and pale continental forms; he said that though Barrett figures and describes the pale form of this species as a mountain form, yet in his experience it was the usual form on the continent. Mr. W. H. Flint read a very interesting paper upon "The Digestive Tract in *Lepidoptera*." He gave an account of his own researches, illustrating them upon the blackboard; describing the morphology, physiology, and embryology, &c., of the various organs. Amongst other things he mentioned that this spring he had a large brood of *Endromis versicolora*, L., which died without eating. On dissecting to ascertain the cause, he found that the mesenteron and proctodeum had never been united, and consequently there was no passage through.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *Nov. 11th, 1901.*—Mr. R. WILDING, Vice-President, in the Chair.

Minutes of the preceding Meeting were read and confirmed.

Messrs. Mallinson, Wynne, Dunlop, and Harrison were elected Members of the Society.

Mr. F. N. Pierce, F.E.S., read a paper, entitled, "The Home of the Swallow-Tails," which was illustrated by lime-light views. After a short *resumé* of the notices of *Papilio Machaon* scattered through the chief entomological literature of three centuries, he described its "habit, habits, and habitat." From his remarks upon the two latter we derived the cheering intelligence that in the Norfolk Broads, at all events, this splendid insect will not be exterminated for many a year to come. Its strong flight, for the most part over swamps, the wide diffusion of its food plant, *Daucus carota*, which carpets the ground everywhere, the consequent impossibility of its being all examined, and the possession by the larva of peculiar organs to drive away ichneumons and birds, all point to this conclusion. The *habit* of *P. Machaon* is very constant, the essayist having seen but few remarkable varieties. One of these, in which the ground colour is deep yellow, he exhibited along with other Fen species. During the discussion Dr. J. W. Ellis gave a short account of his Fenland experiences. Mr. R. Wilding (Chairman) was confident that new species of all Orders awaited the enthusiastic worker in the Fens. Mr. E. J. Burgess Sopp exhibited the very beautiful *Chrysomela cerealis*, along with many other rarities, and stated that he was elucidating the life-history of this gem from Snowdon's coronet, a work which he is the first to attempt, so far as is known. Dr. Ellis referred to the pleasure which the sight of this species occurring suddenly in abundance on the mountain had given to him. Dr. J. Cotton, *Lepidoptera* from the Grange and the New Forest. Mr. W. A. Tyerman, a beautiful series taken at Carrog, which included *P. interrogationis*, *L. caesiata*, and *Noctua triangulum*. Specimens of *Chlœnius nigricornis* from the banks of the River Gowry were shown, and their habits remarked upon by Mr. F. Birch.—FREDK. BIRCH, *Hon. Joint Secretary*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
Sept. 18th, 1901.—Mr. W. J. LUCAS, B.A., F.E.S., Vice-President, in the Chair.

Mr. F. M. B. Carr exhibited a varied series of *Cidaria truncata* from Porlock, N. Somerset, taken among bilberry; no specimens of the yellow form were seen. Mr. Lucas, two specimens of the dragon-fly, *Libellula fulva*, taken near Christchurch by Major Robertson. Mr. Bishop, a bred series of *Eugonia polyohloros*, from ova seen laid naturally in the open by a female in the New Forest. Mr. R. Adkin, a specimen of *Cossus ligniperda*, bred from a larva captured and then placed in a tree in his garden; and a series of *Boarmia consortaria* reared from Abbots Wood pupæ, remarking on the scarcity of the species for some time till the last two years. Mr. Kemp, two specimens of *Sphinx convolvuli* taken at Hythe, near Southampton. Mr. Colthrup, a nice series of *Colias Hyale* from Margate; *Triphæna orbona* from Deal, showing red forms of various intensity; and a very varying series of *Triphæna fimbria* from the I. of Wight. Messrs. Harrison and Maine had taken some ten specimens of *S. convolvuli* at lamps at Forest Gate; Mr. McArthur said that the species was common at Brighton.

October 10th.—Mr. F. NOAD CLARKE, Vice-President, in the Chair.

Mr. McArthur exhibited larvæ of *Triphæna comes* in a novel cage adapted from one of the globular wire cages for catching flies. Mr. Barrett, a var. of *Epinephele tithonus* with xanthic spots, and an unusually large and pale male of

Fidonia atomaria, both from Oxshott. Mr. Garrett, a long bred series of *Vanessa Io*. Mr. Kirkaldy, his collection of *Nabina* from all parts of the world, and called attention to its being especially rich in winged forms. Mr. Kemp, a portion of broom stem bored by the *Coleoptera*, *Hylastinus obscurus*, *Lamophlaeus ater*, and *Phlaophthorus rhododactylus* from Oxshott. Mr. Adkin, a fine bred series of *Lophopteryx cuculla* (*cucullina*) from Sussex, and remarked that some of the pupæ were lying over. Mr. South, specimens of *Thyatira batis*, *T. cognata*, and *T. aurorine* belonging to the *Cymatophoridae*; together with *Risoba trimaculata* and *Cymatophoropsis sinuata*, belonging to the *Stictopterinae*, and contributed notes, especially with reference to the very close superficial resemblance between these two sets of species, although they belonged to two widely separated groups of moths. Mr. Step communicated a short Report of the Field Meeting held at Oxshott on October 5th, and gave a list of the fungi gathered.—HY. J. TURNER, *Hon. Sec.*

October 24th, 1901.—MR. A. HARRISON, F.L.S., in the Chair.

Mr. West (Greenwich) exhibited about 90 species of British *Homoptera*, mainly taken by himself, and which he generously gave to the Society's collection. Mr. Barrett, a long series of *Bryophila muralis* (*glandifera*), of a somewhat dull coloration, from Shorncliffe, and a series of *B. perla*, including one particularly dark form. Mr. W. J. Kaye, two species of *Lepidoptera* new to science, discovered by him at Bartica, British Guiana, during a collecting expedition this year, viz.: *Papilio*, sp. ? , near *P. latinus*, and a Sphingid, *Ambulyx*, sp. ? , near *A. strigilis*. Mr. H. Moore, specimens of *Sphinx convolvuli*, taken in Rotherhithe this autumn, and an example of *S. ligustri*, bred from a larva found in the same place. Messrs. Harrison and Main, six specimens of *S. convolvuli* taken at the electric lights on the Romford Road, E. Mr. R. Adkin, bred series of *Plusia moneta*, from larvæ found in a garden at Bexley, and a bred series of *P. gamma* from eggs laid by a ♀ which flew into his house; he contributed notes on the occurrence, feeding, and habits of the latter species; also a series of *Boarmia repandata*, taken by Mr. McArthur on the Isle of Lewis in 1901. The latter gentleman, the same species captured in 1887 and 1901 in the same place, together with a case set up to show the resting habit of the species on the rocks; he also showed a series of *Melanippe sociata*, var. *obscurata*, from the same locality. Mr. Main, an unusually large specimen of the spider, *Tegenaria domestica*. Mr. South, several varieties of *Lepidoptera* received from Mr. Sabine, including, 1. a xanthic *Epinephele Janira*; 2. *Argynnis Aglaia*, with blotched and radiated under surface; 3. *Polyommatus Corydon*, var. *syngrapha*; and 4. *P. Icarus*, with undeveloped ocelli on the underside, with a *Chrysophus Phlaeas* with large blue blotches. Dr. Chapman, a beautiful N. American Noctuid he had bred, *Acontia urania*; and three New Zealand specimens of a species of *Ceketicus*.

November 4th, 1901.—MR. W. J. LUCAS, B.A., F.E.S., Vice-President in the Chair.

Mr. Lowe, of Putney, was elected a Member.

Messrs. Harrison and Main exhibited a long bred series of *Agriopsis aprilina* from the New Forest, and a series of *Calocampa exoleta* from Delamere Forest. Mr. Moore, a Trap-door Spider's nest from Corfu. Dr. Chapman, long and varied series

of *Parnassius Apollo* and *P. Delius* from various European localities, with many intermediate forms. Mr. Percy F. Smith gave a lecture on "Spiders," illustrated with a large number of lantern slides.—H. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: *November 6th*, 1901.—The Rev. Canon W. W. FOWLER, M.A., F.L.S., President, in the Chair.

Mr. Arthur W. Bacot, 154, Lower Clapton Road, London, N.E.; Mr. Edward Martin Dadd, 3, Colina Villas, Green Lanes, Wood Green, N.; Mr. George Frederick Leigh, Musgrave Road, Durban, Natal; Mr. Rupert S. Lower, Oswaldton, Bartley Crescent, Wayville, South Australia; Mr. John Crampton Wilkinson Ker-shaw, Macao, China; Mr. Henry Woolner Peal, Indian Museum, Calcutta; Mr. Ethelbert Forbes Skertchly, Hong Kong; and Mr. Arthur Smith, 5, Cavendish Street, Grimsby; were elected Fellows of the Society.

The Rev. F. D. Morice exhibited two imperfectly developed females of *Osmia leucomelana* found dead in a rubus stem at Woking, with their cases. Mr. C. P. Pickett, varieties and aberrations of *Colias Hyale* taken at Folkestone during August, 1900—1. Mr. F. B. Jennings, a specimen of *Trachypylæus myrmecophilus*, Seidl., taken at Hastings in September last, retaining intact the deciduous "false mandibles," with the aid of which the imago of the species of this and certain other genera of weevils is said to work its way to the surface after emerging from the pupa underground. These mandibles are usually shed as soon as the imago begins its life above ground, as there is no further use for them. Mr. W. J. Kaye exhibited a collection of butterflies made by him in Trinidad, with several hitherto undescribed species. He said that the probable total Rhopalocerous fauna was about 250 species, the island—about the size of Somersetshire—being thus remarkably rich in butterflies. The number of the species in the families exhibited were *Nymphalidæ* 34, *Satyridæ* 13, *Papilionidæ* 6, *Pieridæ* 31, *Erycinidæ* 29, *Lycenidæ* 27, *Hesperiidæ* 62—nearly all taken within three or four miles of Port of Spain. Dr. Chapman, specimens of *Parnassius Apollo* taken last July in Castile and Aragon (Spain), as well as a number of specimens of both *P. Apollo* and *P. Delius*, chiefly Swiss and French, taken by himself, Mr. Tutt, Mr. A. H. Jones (at Digne), and Mr. Rowland-Brown (at Susa, N. Italy), both for comparison with the Spanish specimens and to illustrate the extent to which the races of these species approached each other in Western Europe; the Spanish specimens differed from most of the others in their great size, the males reaching $3\frac{1}{2}$ in expansion, the females $3\frac{1}{8}$ inches. Both males and females seemed to be exceedingly close to the Asiatic form of *Apollo*, called *hes-bolus*, in general facies at any rate. The males placed between ordinary Swiss *Apollo* and *Delius*, obviously inclined much more to the latter than the former in general tone of colour and intensity of markings. The females were very large, and varied to forms with much increased red ocelli. The best character whereby to distinguish *Apollo* from *Delius* is certainly the black ringed antennæ, which are also usually proportionately shorter. The denser creamier colouring is also very characteristic, yet this would make the Aragon specimens *Delius*. The pouch of the female appears to be identical in both species, while the female appendages have no structural difference observable, beyond one in size, those of *Apollo* being larger and

so apparently more solid. In the Spanish *Apollo* this is markedly so, the differences are however being less proportionately than may be observed in *Erebia aethiops*, of which the appendages of Continental specimens are so much larger than those of British examples. Mr. G. C. Bignell sent for exhibition a specimen of *Sphecophaga vesparum*, Curt., and the cocoon from which it had been bred. Mr. Donisthorpe expressed his opinion that the host was a Ground Wasp. Mr. Gilbert J. Arrow communicated a paper upon "The Genus *Hyliota*, with descriptions of new forms and a list of described species;" and Mr. W. L. Distant, "Contributions to a knowledge of the *Rhynchota*."

November 20th, 1901.—Mr. G. H. VERRELL, Vice-President, in the Chair.

Mr. James B. Casserley, 7, Gloucester Road, Finsbury Park, N.; and Mr. M. Lawson Thompson, 35, Leven Street, Saltburn-by-the-Sea; were elected Fellows of the Society.

Mr. A. H. Jones exhibited various *Lepidoptera* from the Cévennes, including a series of *Lycæna Dolus*, var. *vittata*, *L. Damon*, *L. meleager*, *Melanargia iapygia*, var. *Cleanthe*, and *M. Galatea*, ab. *leucomelas*; also a dark form of *Thais cerisyi* bred from a pupa received from Armenia; also a specimen of *Vanessa Antiopa* taken this year at Eltham, and two specimens of *Cerastis erythrocephala* bred from ova laid by parent moth captured at shallows near Canterbury. Mr. H. Rowland-Brown, a remarkable var. of *Melitæa didyma*, taken at Chateau de la Caze, Tarn, in which the black markings of the under wings were almost entirely absent, and a series of *Lycæna Dolus*, var. *vittata*, from the Cévennes, with *L. Admetus*, var. *Rippertii*, showing the remarkable affinity of the two species, which, however, were never found on the same ground or in the same localities while collecting. Dr. Chapman, butterflies taken by himself and Mr. G. C. Champion in the Sierra Albarracin, Spain, last July; he said, "The district traversed by Mr. Champion and myself was practically the same as that described by Mrs. Nicholl in her paper in the Transactions for 1897, and not many new butterflies were added to the list therein. *Z. quercus* was taken at Tragacete, but this is in Castile, not in Aragon. *Augiades sylvanus* was taken both at Albarracin and Tragacete. *Adopæa Actæon* was met with at Cuenca (Castile). *Adopæa lineæ* seemed to be more abundant than *lineola* at all stations. *L. hylas* and its variety, *nivescens*, were found on the same ground. The common form of *L. Corydon* seemed to be *corydonius*, or near that variety. The very large pale form *hispana* was the commonest at Albarracin, where the *corydonius* form was rare, and at Cuenca, and was not seen at Tragacete. Looking at these and other dimorphic forms occurring here, one could not help questioning whether *Admetus* might not be a dimorphic form of *Damon*. The former was often abundant, the latter always rather scarce. The females, however, have constant differences, and the general tone of colour and arrangement of spots on the under-sides seem abundantly sufficient to satisfy one that they are definite species, though very closely allied. *L. Dolus* seems to occupy precisely the relation to *Damon* that *nivescens* does to *hylas* and that the vars. *hispana* and *albicans* do to *Corydon*. The male appendages of the three, *Damon*, *Dolus*, and *Admetus* appear to be identical. We observed nothing to account for or explain the use of the colouring of *S. Uragani*. It resembles very much the female of *Semele*, which is abundant on the same ground. But the habits of flight of the two are very different, and we never in

fact mistook one for the other. The brown colour is no doubt the original one in the *Satyridæ*, but in this case is more probably a reversion, but as to this I have no data for an opinion." Mr. L. B. Prout exhibited and commented upon a number of *Geometridæ*, also taken by Dr. Chapman and Mr. Champion in Spain. Mr. F. Merrifield, specimens of *Pieris rapa* and *P. ergane* from Dalmatia, showing that the two species are extremely difficult to separate, even if they are not identical. Mr. C. P. Pickett, varieties of *Argynnis Paphia* and *A. Aglaia*, similarly aberrant, from the New Forest. Mr. C. J. Watkins sent for exhibition micro-photographs of the larva in its case and the perfect insect of an *Oxyethira*, one of the *Hydroptilidæ*, a family of *Micro-Trichoptera*; these had been taken by Mr. Mearns, of Aberdeen; also a drawing made by himself under the microscope of a larva (in its case) of the same genus.—H. ROWLAND-BROWN, *Hon. Secretary*.

LEPIDOPTERA OBSERVED IN THE PARISH OF MORTEHOE, NORTH DEVON.*

BY G. B. LONGSTAFF, M.D., F.R.C.P.

The parish of Morte-hoe, or, as the natives usually call it, Morte, occupies the north-west corner of Devonshire, with about five miles of coast-line washed by the Bristol Channel and the Atlantic Ocean. It extends some $3\frac{1}{2}$ miles from north to south, and about 3 miles from east to west, and contains 4246 acres. The north-eastern corner of the parish, extending like a horn, almost severs the western end of the parish of Ilfracombe, and it is probable that a few of the insects mentioned may have been observed there, and not in Morte-hoe proper. In like manner it is possible that the same remark may apply, in a less degree, to the adjoining parishes of George Ham and West Down.

Speaking generally, north of the Woolacombe Valley and the railway station the sub-soil is a shaly slate, to the south of these landmarks a hard sandstone, both being members of the Devonian system. The vegetation of the road-sides and hedge-banks affords abundant indications that much of the land now cultivated was once covered with heather, and many of the higher fields are still called "moors;" indeed, I believe some parts of Woolacombe Down have been enclosed within the memory of men now living.

The first thing to strike an entomologist visiting the locality for the first time is its high bleak character. A considerable acreage lies more than 500 ft. above the sea, the highest point being 688 ft. Secondly, the lack of cover: woods are small, and few and far

* Published also in pamphlet form by Mitchell and Hughes, 140, Wardour St., W. (1901).

between. Isolated trees, when met with, are stunted, and often strangely formed, presenting the weird appearance of having been blown so out of shape as to grow horizontally rather than vertically. This distortion, by the way, is not so much due to the *bending* action of the wind, as to a species of *pruning*; the buds growing to windward are killed, while those on the leeward side are able to develop in comparative security. Then again, the old stone walls, built of the native slates and earth, locally called "dry-ditches,"* though grown over with gorse and brambles, with an occasional thorn bush, or more often a sallow, do not afford anything like the harbour for insects that the glorious hedgerows of some of the south-eastern counties do. Thirdly—and this is by far the most important fact—the entomologist will be struck with the "fine air" for which Morte is justly celebrated. The temple of Æolus might well be erected on Challacombe Hill, or even where the ancient Parish Church stands. It is rarely that there is not a strong breeze blowing, while gales soon cease to cause astonishment. This is why trees are so scarce. There are indeed but few days when the more feeble flyers can get about in comfort, and even the strongest soon get battered and torn. Hence it is most difficult to dislodge insects, and even more difficult to catch them when disturbed.

In association with these peculiar conditions it is interesting to take a general view of the insect fauna. Butterflies are extremely numerous as regards individuals, and a fair number of species are met with. "Sugar" reveals many *Noctuæ*, a few of great interest, but a very large proportion of those visiting it is made up of *Agrotis xanthographa* or *Hadena meticulosa*. The absence of trees may at first puzzle the collector accustomed to sugaring in woods, but he will soon learn that Morte moths prefer to sip their sugar from furze bushes or tall flowers, even when trees are available. On the other hand, the *Geometræ* are but poorly represented, while the scarcity of *Tortrices*, both as regards species and specimens, is most marked.

This does not pretend to be, even approximately, a complete list. To begin with, though always noting such insects as have come across my path, it is many years since I have myself collected, and the list is consequently for the most part made up from observations when accompanying entomological friends in their rambles in the district; the work is therefore really due to these friends—The Rev. C. J. Buckmaster, Mr. D. A. Onslow, Mr. A. L. Onslow, Mr. F. R. D.

* A ditch, properly speaking, consists of that dug out (*agger*), and the place out of which it is dug (*vallum*). In most parts of the country the word is confined to the latter.

Onslow, Mr. Selwyn Image, and Dr. F. A. Dixey.* To the last-named, who has been my more frequent companion, I am especially indebted; most of the insects referred to have passed into his collection, and several of the more interesting species have been determined by him. Without his accurate register of captures it would have been impossible to make the compilation. My visits to Morthoe, though annual for twenty-one years, have been for the most part confined to August and September. Moreover, I have paid comparatively little attention to larvæ, and have made no systematic attempt to record any *Tineina* save a few of the more conspicuous species.

Nevertheless, with all these limitations, it is not a little remarkable that none of the following species have turned up: *A. festiva*, *A. typica*, *H. maura*, *H. strigilis*, *C. nupta*, *O. antiqua*,† *P. similis* (*auriflua*), *O. brumata*, *A. candidata*, *N. strigata* (*thymiaria*), *S. gemmaria* (*rhomboidaria*), *H. defoliaria*, and *O. sambucaria*. Many abundant *Tortricæ* also, such as *T. viridana*, are conspicuous by their absence. The restricted nature of the fauna is also shown by the fact that many of the species recorded are represented by but very few specimens.

In 1883 Dr. W. S. Riding published in the *Entomologist* an admirable paper termed "A Month at Morthoe, North Devon." He must have worked hard and well to get so many species in the time. I have included all his observations where I have not been able to confirm them.

The small size and extreme isolation of Lundy Island gives its fauna an especial interest, so a few species, mostly of the commonest, observed on the occasion of flying visits, are here mentioned.

The nomenclature adopted is that of Mr. Meyrick's *Handbook of British Lepidoptera*, 1895. Where I have the least doubt as to the identity of a species, a note of interrogation is appended; where I have not been able to verify an observation personally, the species is included within square brackets.

CARADRININA.

ARCTIADÆ.

Lithosia complana, one specimen.

[*Tyria jacobææ*, Dr. Riding speaks of the larvæ as in great numbers; I have seen them abundant on Braunton Burrows, but not within the parish, and two attempts to introduce them have failed.]

* I have not thought it necessary to quote the names of any of these gentlemen, save in association with a few of the more interesting captures.

† After this was written, Mr. A. L. Onslow when shooting saw a specimen "vapouring over the fields."

Phragmatobia fuliginosa, larvæ common; Dr. Dixey found an imago at Croyde, 1885.

Diacrisia menthastri, also larvæ.—*D. lubricipeda*, larvæ.

Arctia villica, a few. [Also larvæ. Dr. Dixey, 1897].—*A. caja*, not common; also larvæ.

CARADRINIDÆ.

Cucullia absinthii, larvæ on *Artemisia absinthium*.—*C. verbasci*?, larvæ probably of this species were seen on mullein some years ago.

Polia æoleta, at sugar.—*P. socia* (*petrificata*), at sugar.—*P. ornithopus* (*rhizolitha*), at sugar.—*P. lichenea*, several at sugar; one at light.—*P. xanthomista* (*nigrocincta*), scarce; several females taken when sugaring with Dr. Dixey in 1890 and 1898. [Dr. Riding took three females and four females in 1883.]

Miselia oxyacanthæ, at sugar.

[*Aporophyla lufulenta*, Dr. Riding took this at sugar.]—*A. nigra*, at light and sugar; sometimes abundant.—*A. lunosa*, at sugar and light, also at rest by day.

Orthosia flavago (*silago*), scarce at sugar.—*O. fulvago* (*cerago*), one, 1894.—*O. circumcellaris* (*ferruginea*), abundant at sugar.—*O. helvola* (*rufina*), common at sugar.—*O. pistacina*, common at sugar.—*O. macilenta*, at sugar.—*O. lota*, at sugar.—*O. sotellitia*, at sugar.

Conistra vaccinii, common at sugar.

Leucania lithargyrea, one taken at sugar by Dr. Dixey in 1897.—*L. littoralis*, one taken at light by Dr. Dixey in 1897.—*L. conigera*, rather common.—*L. unpuncta* (*extranea*), a solitary scout of the American "Army Worm" was captured September 28th, 1897, when sugaring with Dr. Dixey.—*L. impura*, common.—*L. pallens*, two specimens.

Monima incerta (*instabilis*), at willow bloom.—*M. stabilis*, at willow bloom and sugar.—*M. pulverulenta* (*cruda*), at willow bloom.—*M. munda*, one at sugar.—*M. gothica*, at willow bloom.

Charæas graminis.

Neuronia popularis, common at light; one at sugar.

Panolis piniperda, one taken by Dr. Dixey in 1898 in a young fir plantation which was only planted in 1879, there being no other fir-trees near.

[*Harmodia nana* (*conspersa*), larvæ, Dr. Riding.]—[*H. carpophaga* (*capso-phila*), larvæ, Dr. Riding.]—*H. capsicola*, one specimen in 1884. [Also Dr. Riding, who found the larvæ common.]—*H. cucubali*, one nothing. [Dr. Riding found the larvæ abundant.]

Melanchra cespitis, several at light; one at sugar.—*M. serena*, larvæ common; F. D. Onslow.—*M. dentina*, one in 1899.—*M. oleracea*, larvæ.—*M. pisi*, larvæ common.—*M. brassicæ*, occasionally at sugar; also larvæ.

Agrotis vestigialis (*valligera*), at light and sugar.—*A. segetum*, common at sugar.—*A. ypsilon* (*suffusa*), abundant at sugar.—*A. exclamatoris*, common; in the beginning of July, 1897, this came to flowers of *Centranthus ruber* in countless numbers.—*A. obelisca*, three at sugar.—*A. nigricans*, at sugar.—*A. saucia*, abundant at sugar.—*A. cursoria*, at sugar, on the sandhills.—*A. puta*, a few at sugar.—*A. plecta*, common at sugar.—*A. strigula* (*porphyrea*), larvæ.—*A. agathina*, taken at heather bloom by A. L. Onslow.—*A. tritici* (*aquilina*), at sugar, 1888.—*A. simulans* (*pyrophila*)?, A. L. Onslow.—*A. c-nigrum*, at bloom

of *Eupatorium cannabinum*; sometimes abundant at sugar.—*A. pronuba* abundant.—*A. comes (orbona)*, common.—[*A. brunnea*, taken at sugar by Dr. Riding.]—*A. xanthographa*, very abundant; often swarming at sugar (also at Lundy Island).—*A. umbrosa*, common at flowers of *Centranthus ruber*; also taken at sugar.—*A. rubi (bella)*, one at sugar, 1892.—*A. dahlia*, one at sugar, 1890.—*A. glareosa*, common at sugar.

Triphaena fimbria, occasionally at sugar.—*T. ianthina*, occasionally at sugar.
T. interjecta, one at sugar. *T. boja*, several at sugar.

Heliothis peltigera, a specimen taken by Mr. A. L. Onslow, 1899. [? A specimen seen by the writer at thistle-flowers at Baggy Point (George Ham Parish) in 1871.]

Ochria ochracea (flavajo), a few.

Luperina testacea, several at light. [Dr. Riding apparently found it abundant at sugar, since he speaks of "all sorts of varieties, from strongly-marked specimens to those in which the lines were barely discernible."]

Rusina tenebrosa?, a specimen in the house, 1896.

Amphipyra pyramidea, abundant at sugar.—*A. tragopogonis*, common at sugar.

Caradrina trapesina, one specimen.—*C. micacea*, not uncommon; one specimen seen at flowers of *Eupatorium cannabinum* in full daylight.—*C. fulva*, one specimen, 1884.—*C. arcuosa*—*C. quadripunctata (cubicularis)*, common, especially in hay and corn stacks.—*C. taraxaci (blunda)*, at flowers.—*C. trigrammica (trilinea)*, a specimen at sugar, 1889.—*C. matura (cytherea)*, a few.

Stilbia anomala, occasionally, in 1892 and later. [Dr. Riding took several, some apparently at sugar.]

Hadena meticulosa, extremely abundant in the larva state on *gladiolus* in the garden, and sometimes swarming at sugar.—*H. lucipara*, Dr. Dixey took a specimen "nothing," 1898.—*H. gemina*, one at sugar, 1889.—*H. polyodon (monoglyph)*, abundant at sugar and flowers of *Centranthus ruber*.—*H. lithosylea*.—*H. rurea*, one at sugar, 1889.—*H. basilinea*, two at sugar, 1889.—*H. didyma (oculea)*, abundant at sugar; extremely variable as usual.—*H. nictitans*, occasionally at sugar; once seen at ragwort bloom by day.—*H. literosa*, common at sugar and flowers.—*H. bicoloria (furuncula)*?.—*H. fasciuncula*, one at sugar, 1889.

Metachrostis perla, three specimens. [Dr. Riding found this abundant.]—[*M. muralis (glandifera)*, Dr. Riding.]

Acronycta psi, [Dr. Riding found the larvæ common.].—*A. ligustri*, one at sugar, 1884.—(*A. rumicis*, a larva noticed at Lundy.)

PLUSIADÆ.

Hypena proboscidalis, not uncommon; once at sugar.

Scoliopteryx libatrix, common at sugar, also at willow bloom.

Plusia gamma, larvæ abundant; the perfect insect always abundant, sometimes in extraordinary swarms (also at Lundy Island).—*P. triplasia*, a larva.

Euclidia mi, larvæ abundant.

Panemeria tenebrata (arbuti).

OCNERIADÆ.

Dasychira pudibunda, larvæ.

Colocasia coryli, a larva on beech. [Common according to Dr. Riding.]

Ocnieria monacha, a single specimen at rest on a tree trunk, 1898.

so apparently more solid. In the Spanish *Apollo* this is markedly so, the differences are however being less proportionately than may be observed in *Erebia athiops*, of which the appendages of Continental specimens are so much larger than those of British examples. Mr. G. C. Bignell sent for exhibition a specimen of *Sphecofaga vesparum*, Curt., and the cocoon from which it had been bred. Mr. Donisthorpe expressed his opinion that the host was a Ground Wasp. Mr. Gilbert J. Arrow communicated a paper upon "The Genus *Hylota*, with descriptions of new forms and a list of described species;" and Mr. W. L. Distant, "Contributions to a knowledge of the *Rhynchota*."

November 20th, 1901.—Mr. G. H. VERRALL, Vice-President, in the Chair.

Mr. James B. Casserley, 7, Gloucester Road, Finsbury Park, N.; and Mr. M. Lawson Thompson, 35, Leven Street, Saltburn-by-the-Sea; were elected Fellows of the Society.

Mr. A. H. Jones exhibited various *Lepidoptera* from the Cévennes, including a series of *Lycæna Dolus*, var. *vittata*, *L. Damon*, *L. meleager*, *Melanargia iapygia*, var. *Cleanthe*, and *M. Galatea*, ab. *leucomelas*; also a dark form of *Thais cerisyi* bred from a pupa received from Armenia; also a specimen of *Vanessa Antiopa* taken this year at Eltham, and two specimens of *Cerastis erythrocephala* bred from ova laid by parent moth captured at shallows near Canterbury. Mr. H. Rowland-Brown, a remarkable var. of *Melitæa didyma*, taken at Chateau de la Caze, Tarn, in which the black markings of the under wings were almost entirely absent, and a series of *Lycæna Dolus*, var. *vittata*, from the Cévennes, with *L. Admetus*, var. *Rippertii*, showing the remarkable affinity of the two species, which, however, were never found on the same ground or in the same localities while collecting. Dr. Chapman, butterflies taken by himself and Mr. G. C. Champion in the Sierra Albarracin, Spain, last July; he said, "The district traversed by Mr. Champion and myself was practically the same as that described by Mrs. Nicholl in her paper in the Transactions for 1897, and not many new butterflies were added to the list therein. *Z. quercus* was taken at Tragacete, but this is in Castile, not in Aragon. *Augiades sylvanus* was taken both at Albarracin and Tragacete. *Adopæa Actæon* was met with at Cuenca (Castile). *Adopæa linea* seemed to be more abundant than *lineola* at all stations. *L. hylas* and its variety, *nivescens*, were found on the same ground. The common form of *L. Corydon* seemed to be *corydonius*, or near that variety. The very large pale form *hispana* was the commonest at Albarracin, where the *corydonius* form was rare, and at Cuenca, and was not seen at Tragacete. Looking at these and other dimorphic forms occurring here, one could not help questioning whether *Admetus* might not be a dimorphic form of *Damon*. The former was often abundant, the latter always rather scarce. The females, however, have constant differences, and the general tone of colour and arrangement of spots on the under-sides seem abundantly sufficient to satisfy one that they are definite species, though very closely allied. *L. Dolus* seems to occupy precisely the relation to *Damon* that *nivescens* does to *hylas* and that the vars. *hispana* and *albicans* do to *Corydon*. The male appendages of the three, *Damon*, *Dolus*, and *Admetus* appear to be identical. We observed nothing to account for or explain the use of the colouring of *S. Uragoni*. It resembles very much the female of *Semele*, which is abundant on the same ground. But the habits of flight of the two are very different, and we never in

fact mistook one for the other. The brown colour is no doubt the original one in the *Satyrids*, but in this case is more probably a reversion, but as to this I have no data for an opinion." Mr. L. B. Prout exhibited and commented upon a number of *Geometridæ*, also taken by Dr. Chapman and Mr. Champion in Spain. Mr. F. Merrifield, specimens of *Pieris rapæ* and *P. ergane* from Dalmatia, showing that the two species are extremely difficult to separate, even if they are not identical. Mr. C. P. Pickett, varieties of *Argynnis Paphia* and *A. Aglaia*, similarly aberrant, from the New Forest. Mr. C. J. Watkins sent for exhibition micro-photographs of the larva in its case and the perfect insect of an *Oxeythira*, one of the *Hydroptilidæ*, a family of *Micro-Trichoptera*; these had been taken by Mr. Mearns, of Aberdeen; also a drawing made by himself under the microscope of a larva (in its case) of the same genus.—H. ROWLAND-BROWN, *Hon. Secretary*.

LEPIDOPTERA OBSERVED IN THE PARISH OF MORTEHOE, NORTH DEVON.*

BY G. B. LONGSTAFF, M.D., F.R.C.P.

The parish of Morte-hoe, or, as the natives usually call it, Morte, occupies the north-west corner of Devonshire, with about five miles of coast-line washed by the Bristol Channel and the Atlantic Ocean. It extends some $3\frac{1}{2}$ miles from north to south, and about 3 miles from east to west, and contains 4246 acres. The north-eastern corner of the parish, extending like a horn, almost severs the western end of the parish of Ilfracombe, and it is probable that a few of the insects mentioned may have been observed there, and not in Morte-hoe proper. In like manner it is possible that the same remark may apply, in a less degree, to the adjoining parishes of George Ham and West Down.

Speaking generally, north of the Woolacombe Valley and the railway station the sub-soil is a shaly slate, to the south of these landmarks a hard sandstone, both being members of the Devonian system. The vegetation of the road-sides and hedge-banks affords abundant indications that much of the land now cultivated was once covered with heather, and many of the higher fields are still called "moors;" indeed, I believe some parts of Woolacombe Down have been enclosed within the memory of men now living.

The first thing to strike an entomologist visiting the locality for the first time is its high bleak character. A considerable acreage lies more than 500 ft. above the sea, the highest point being 688 ft. Secondly, the lack of cover: woods are small, and few and far

* Published also in pamphlet form by Mitchell and Hughes, 140, Wardour St., W. (1901).

between. Isolated trees, when met with, are stunted, and often strangely formed, presenting the weird appearance of having been blown so out of shape as to grow horizontally rather than vertically. This distortion, by the way, is not so much due to the *bending* action of the wind, as to a species of *pruning*; the buds growing to windward are killed, while those on the leeward side are able to develop in comparative security. Then again, the old stone walls, built of the native slates and earth, locally called "dry-ditches,"* though grown over with gorse and brambles, with an occasional thorn bush, or more often a sallow, do not afford anything like the harbour for insects that the glorious hedgerows of some of the south-eastern counties do. Thirdly—and this is by far the most important fact—the entomologist will be struck with the "fine air" for which Morte is justly celebrated. The temple of Æolus might well be erected on Challacombe Hill, or even where the ancient Parish Church stands. It is rarely that there is not a strong breeze blowing, while gales soon cease to cause astonishment. This is why trees are so scarce. There are indeed but few days when the more feeble flyers can get about in comfort, and even the strongest soon get battered and torn. Hence it is most difficult to dislodge insects, and even more difficult to catch them when disturbed.

In association with these peculiar conditions it is interesting to take a general view of the insect fauna. Butterflies are extremely numerous as regards individuals, and a fair number of species are met with. "Sugar" reveals many *Noctuæ*, a few of great interest, but a very large proportion of those visiting it is made up of *Agrotis xanthographa* or *Hadena meticulosa*. The absence of trees may at first puzzle the collector accustomed to sugaring in woods, but he will soon learn that Morte moths prefer to sip their sugar from furze bushes or tall flowers, even when trees are available. On the other hand, the *Geometræ* are but poorly represented, while the scarcity of *Tortrices*, both as regards species and specimens, is most marked.

This does not pretend to be, even approximately, a complete list. To begin with, though always noting such insects as have come across my path, it is many years since I have myself collected, and the list is consequently for the most part made up from observations when accompanying entomological friends in their rambles in the district; the work is therefore really due to these friends—The Rev. C. J. Buckmaster, Mr. D. A. Onslow, Mr. A. L. Onslow, Mr. F. R. D.

* A ditch, properly speaking, consists of that dug out (*agger*), and the place out of which it is dug (*vallum*). In most parts of the country the word is confined to the latter.

Onslow, Mr. Selwyn Image, and Dr. F. A. Dixey.* To the last-named, who has been my more frequent companion, I am especially indebted; most of the insects referred to have passed into his collection, and several of the more interesting species have been determined by him. Without his accurate register of captures it would have been impossible to make the compilation. My visits to Morthoe, though annual for twenty-one years, have been for the most part confined to August and September. Moreover, I have paid comparatively little attention to larvæ, and have made no systematic attempt to record any *Tineina* save a few of the more conspicuous species.

Nevertheless, with all these limitations, it is not a little remarkable that none of the following species have turned up: *A. festiva*, *A. typica*, *H. maura*, *H. strigilis*, *C. nupta*, *O. antiqua*,† *P. similis* (*auriflua*), *O. brumata*, *A. candidata*, *N. strigata* (*thymiaria*), *S. gemmaria* (*rhomboidaria*), *H. defoliaria*, and *O. sambucaria*. Many abundant *Tortrices* also, such as *T. viridana*, are conspicuous by their absence. The restricted nature of the fauna is also shown by the fact that many of the species recorded are represented by but very few specimens.

In 1883 Dr. W. S. Riding published in the *Entomologist* an admirable paper termed "A Month at Morthoe, North Devon." He must have worked hard and well to get so many species in the time. I have included all his observations where I have not been able to confirm them.

The small size and extreme isolation of Lundy Island gives its fauna an especial interest, so a few species, mostly of the commonest, observed on the occasion of flying visits, are here mentioned.

The nomenclature adopted is that of Mr. Meyrick's *Handbook of British Lepidoptera*, 1895. Where I have the least doubt as to the identity of a species, a note of interrogation is appended; where I have not been able to verify an observation personally, the species is included within square brackets.

CARADRININA.

ARCTIADÆ.

Lithostia complana, one specimen.

[*Tyria jacobæ*, Dr. Riding speaks of the larvæ as in great numbers; I have seen them abundant on Braunton Burrows, but not within the parish, and two attempts to introduce them have failed.]

* I have not thought it necessary to quote the names of any of these gentlemen, save in association with a few of the more interesting captures.

† After this was written, Mr. A. L. Onslow when shooting saw a specimen "vapouring over the fields."

Phragmatobia fuliginosa, larvæ common; Dr. Dixey found an imago at Croyde, 1885.

Diacrisia menthastri, also larvæ.—*D. lubricipeda*, larvæ.

Arctia villica, a few. [Also larvæ. Dr. Dixey, 1897].—*A. caja*, not common; also larvæ.

CARADRINIDÆ.

Cucullia absinthii, larvæ on *Artemisia absinthium*.—*C. verbasci*?, larvæ probably of this species were seen on mullein some years ago.

Polia exoleta, at sugar.—*P. socia* (*petrificata*), at sugar.—*P. ornithopus* (*rhisolitha*), at sugar.—*P. lichenea*, several at sugar; one at light.—*P. xanthomista* (*nirocincta*), scarce; several females taken when sugaring with Dr. Dixey in 1890 and 1898. [Dr. Riding took three females and four females in 1883.]

Miselia oxyacanthæ, at sugar.

[*Aporophyla lutulenta*, Dr. Riding took this at sugar.]—*A. nigra*, at light and sugar; sometimes abundant.—*A. lunosa*, at sugar and light, also at rest by day.

Orthosia flavago (*silago*), scarce at sugar.—*O. fulvago* (*cerago*), one, 1894.—*O. circellaris* (*ferruginea*), abundant at sugar.—*O. helvola* (*rufina*), common at sugar.—*O. pistacina*, common at sugar.—*O. macilenta*, at sugar.—*O. lota*, at sugar.—*O. satellitia*, at sugar.

Conistra vaccinii, common at sugar.

Leucania lithargyrea, one taken at sugar by Dr. Dixey in 1897.—*L. littoralis*, one taken at light by Dr. Dixey in 1897.—*L. conigera*, rather common.—*L. unipuncta* (*extranea*), a solitary scout of the American "Army Worm" was captured September 28th, 1897, when sugaring with Dr. Dixey.—*L. impura*, common.—*L. pallens*, two specimens.

Monima incerta (*instabilis*), at sallow bloom.—*M. stabilis*, at sallow bloom and sugar.—*M. pulverulenta* (*cruda*), at sallow bloom.—*M. munda*, one at sugar.—*M. gothica*, at sallow bloom.

Charæas graminis.

Neuronia popularis, common at light; one at sugar.

Panolis piniperda, one taken by Dr. Dixey in 1898 in a young fir plantation which was only planted in 1879, there being no other fir-trees near.

[*Harmodia nana* (*conspersa*), larvæ, Dr. Riding.]—[*H. carpophaga* (*capso-phila*), larvæ, Dr. Riding.]—*H. capsicola*, one specimen in 1884. [Also Dr. Riding, who found the larvæ common.]—*H. cucubali*, one mothling. [Dr. Riding found the larvæ abundant.]

Melanchra cespitis, several at light; one at sugar.—*M. serena*, larvæ common; F. D. Onslow.—*M. dentina*, one in 1899.—*M. oleracea*, larvæ.—*M. pisi*, larvæ common.—*M. brassicæ*, occasionally at sugar; also larvæ.

Agrotis vestigialis (*valligera*), at light and sugar.—*A. segetum*, common at sugar.—*A. ypsilon* (*sufusa*), abundant at sugar.—*A. exclamationis*, common; in the beginning of July, 1897, this came to flowers of *Centranthus ruber* in countless numbers.—*A. obelisca*, three at sugar.—*A. nigricans*, at sugar.—*A. saucia*, abundant at sugar.—*A. cursoria*, at sugar, on the sandhills.—*A. puta*, a few at sugar.—*A. plecta*, common at sugar.—*A. strigula* (*porphyrea*), larvæ.—*A. apathina*, taken at heather bloom by A. L. Onslow.—*A. tritici* (*aquilina*), at sugar, 1888.—*A. simulans* (*pyrophila*)?, A. L. Onslow.—*A. c-nigrum*, at bloom

of *Eupatorium cannabinum* ; sometimes abundant at sugar. — *A. pronuba* abundant. — *A. comes (orbona)*, common. — [*A. brunnea*, taken at sugar by Dr. Riding.] — *A. xanthographa*, very abundant ; often swarming at sugar (also at Lundy Island). — *A. umbrosa*, common at flowers of *Centranthus ruber* ; also taken at sugar. — *A. rubi (bella)*, one at sugar, 1892. — *A. dahlia*, one at sugar, 1890. — *A. glareosa*, common at sugar.

Triphæna fimbria, occasionally at sugar. — *T. ianthina*, occasionally at sugar. *T. interjecta*, one at sugar. *T. baja*, several at sugar.

Heliothis peltigera, a specimen taken by Mr. A. L. Onslow, 1899. [? A specimen seen by the writer at thistle-flowers at Baggy Point (George Ham Parish) in 1871.]

Ochria ochracea (flavago), a few.

Luperina testacea, several at light. [Dr. Riding apparently found it abundant at sugar, since he speaks of "all sorts of varieties, from strongly-marked specimens to those in which the lines were barely discernible."]

Rusina tenebrosa ?, a specimen in the house, 1896.

Amphipyra pyramidea, abundant at sugar. — *A. tragopogonis*, common at sugar.

Caradrina trapezina, one specimen. — *C. micacea*, not uncommon ; one specimen seen at flowers of *Eupatorium cannabinum* in full daylight. — *C. fulva*, one specimen, 1884. — *C. arcuosa* — *C. quadripunctata (cubicularis)*, common, especially in hay and corn stacks. — *C. taraxaci (blunda)*, at flowers. — *C. trigrammica (trilinea)*, a specimen at sugar, 1889. — *C. matura (cytherea)*, a few.

Stilbia anomala, occasionally, in 1892 and later. [Dr. Riding took several, some apparently at sugar.]

Hadena meticulosa, extremely abundant in the larva state on *gladiolus* in the garden, and sometimes swarming at sugar. — *H. lucipara*, Dr. Dixey took a specimen "mothling," 1898. — *H. gemina*, one at sugar, 1889. — *H. polyodon (monoglyph)*, abundant at sugar and flowers of *Centranthus ruber*. — *H. lithowylea*. — *H. rurea*, one at sugar, 1889. — *H. basilinea*, two at sugar, 1889. — *H. didyma (oculea)*, abundant at sugar ; extremely variable as usual. — *H. nictitans*, occasionally at sugar ; once seen at ragwort bloom by day. — *H. literosa*, common at sugar and flowers. — *H. bicoloria (furuncula)* ?. — *H. fasciuncula*, one at sugar, 1889.

Metachrostis perla, three specimens. [Dr. Riding found this abundant.] — [*M. muralis (glandifera)*, Dr. Riding.]

Acronycta psi, [Dr. Riding found the larvæ common.] — *A. ligustri*, one at sugar, 1884. — (*A. rumicis*, a larva noticed at Lundy.)

PLUSIADÆ.

Hypena proboscidalis, not uncommon ; once at sugar.

Scoliopteryx libatrix, common at sugar, also at sallow bloom.

Plusia gamma, larvæ abundant ; the perfect insect always abundant, sometimes in extraordinary swarms (also at Lundy Island). — *P. triplasia*, a larva.

Euclidia mi, larvæ abundant.

Panemeria tenebrata (arbuti).

OCNERIADÆ.

Dasychira pudibunda, larvæ.

Colocasia coryli, a larva on beech. [Common according to Dr. Riding.]

Ocnèria monacha, a single specimen at rest on a tree trunk, 1898.

NOTODONTINA.

HYDRIOMENIDÆ.

[*Chloroclystis coronata*, larvæ common, Dr. Riding.]

Gymnoscelis pumilata, a larva.

Teptroclystis absynthiata, larvæ abundant on ragwort and *Artemisia*.—*T. assimilata* ?.—*T. oblongata* (*centaureata*), a larva on heather; imago taken by Mr. A. L. Onslow.—*T. subfulvata* (? also larvæ on yarrow).—*T. pulchellata*, larvæ.—*T. linariata*, larvæ common.—*T. castigata* (*jasioneata*), larvæ abundant by sweeping.—*T. isogrammaria* (*haworthiata*), larvæ on *Clematis vitalba* in the garden.—*T. nanata*, larvæ.

Eucestia plagiata, common.

Eustroma testata, common.

[*Plemyria rivata*, Dr. Riding].—*P. sociata* (*subtristata*, *birivata*), common.—[*P. galiata*, two specimens, Dr. Dixey.]

Hydriomena ocellata.—*H. variata* (*obeliscata*), first taken in 1890 in pine-wood planted in 1879; by 1898, it was decidedly common.—*H. dotata* (*pyraliata*), a few.—*H. miata* ?, one specimen.—[*H. siterata* (*psittacata*), several, Dr. Dixey.]—*H. sordidata* (*elutata*), common.—*H. truncata* (*russata*, *immanata*), both forms, but *immanata* the commoner.—*H. silaceata*, scarce.—*H. dubitata*, rather common, especially at light.—(*H. unangulata*, in West Down).—*H. affinitata*, two. [Larvæ common, Dr. Riding.]—*H. decolorata*, a few. [Larvæ common, Dr. Riding.]—*H. bilineata*, abundant, but not such a pest as in the London district.

[*Euchæca sylvata*, Dr. Riding.]

Xanthorhœ limitata (*mensuraria*), common.—*X. plumbaria* (*palumbaria*), not common.—*X. didymata*, abundant.—*X. spadicearia* (*ferrugaria*).—*H. ferrugata* (*unidentaria*).—*X. montanata*.—*X. fluctuata*, common, especially in the garden.—(*X. olivata*, I have taken this species several times in North Devon many years ago, but cannot remember seeing it in Mortehoe).—*X. viridaria* (*pectinilaria*, *mixria*).

STERRHIDÆ.

Fois aversata, Dr. Dixey.—*E. dimidiata* (*scutulata*).—*E. bisetata*, abundant.
Leptomeris remutaria.

MONOTENIIDÆ.

Baptria atrata (*chærophyllata*), several.

SELIDOSEMIDÆ.

Opisthographis luteolata (*cratægata*), common; also larvæ.

Diacticlis wauaria (*wavaria*), in the garden.

Ectropis biundularia (*crepuscularia*, *laricaria*).

Cleora lichenaria, larvæ on lichen on sycamore.

Selidosema repandata, common; very common in 1898.

Abrazeas grossulariata, common (Dr. Dixey noted it on Lundy Island).—*A. marginata*.

Pseudo-panthera punctata (*temerata*), larvæ common.—*Ps. macularia*, common.—*Ps. obscuraria* (*pullata*), not uncommon, both forms.—*Ps. petraria*.

Crocota ochrearia (*citraria*), common. Dr. Riding, in reference to this species, says, "no plants of *Daucus carota* were to be found." Presumably this refers to the particular spots where he saw the moths. The plant is common enough in Mortehoe.

Hybernia marginaria (*progemmaria*), two.

Deilinia pusaria, one.—*D. exanthemata*, common.

[*Methocampa margaritaria*, Dr. Riding.]—*M. dolobraria*, one specimen.

Euchlœna apiciaria, several.

Selenia bilunaria (*illunaria*), several.

Gonodontis elinguaris, a few.

POLYPLOCIDÆ.

Habrosyne derasa, a wing in a cob-web; also larva.

Thyatira batis, one in sugar-trap.

SPHINGIDÆ.

Macroglossa stellatarum, a few most years; very common 1899.

Sphinx ligustri, occasionally on the wing; also larvæ.—*S. convolvuli*, at flowers of carnation, *Phlox*, *Hyacinthus candicans*, and *Gladiolus*, but especially of white tobacco; repeatedly came to a flower held in the hand. Quite common in 1898 and 1901; also seen in 1885, 1887, and 1899.

[*Acherontia Atropos*, Dr. Dixey got a larva at Croyde, 1885.]

Smerinthus populi.

NOTODONTIDÆ.

Odontotia camelina, larvæ.

Cerura vinula, larvæ.—[*C. furcula*, Dr. Riding found larvæ at Ilfracombe.]

Phalera bucephala, larvæ common.

LASIOCAMPINA.

LASIOCAMPIDÆ.

Lasiocampa quercus (*callunæ*), larvæ common; the imago seen occasionally; several males came to a newly-emerged female (also found at Lundy Island by Dr. Dixey).

Eriogaster rubi, larvæ common. [Also at Lundy Island.]

Clisiocampa neustria, larvæ sometimes abundant; the imago occasionally at light.

Odonestis potatoria, common; also larvæ.

PAPILIONINA.

NYMPHALIDÆ.

Argynnis Paphia, common.—*A. Aglaia*, common; one year very common (? 1885).—*A. selene*, abundant locally.

Vanessa urticae, usually common; abundant in 1895 (also at Lundy Island).—[*V. polyphlora*, reported at Lee, Ilfracombe, 1900.]—*V. io*, common; abundant in 1900.—[*V. Antiopa*, a specimen seen by the writer's mother (who described the insect accurately) at flowers of *Centranthus ruber* at Hele, near Ilfracombe, in 1866.]—*V. Atalanta*, very common; in 1897 abundant (also at Lundy Island).—*V. cardui*, seen nearly every year, but sometimes scarce; very abundant 1879; hibernated specimens in swarms, May, 1884; fresh specimens first seen, July 27th of the same year, were very common in August, but less so than in 1879; it was common in 1892, but not seen at all in 1901.

SATYRIDÆ.

[*Metanargia galathea*, a specimen seen on the wing in 1899 by Mr. D. A. Onslow; another in the same year seen by both Mr. A. L. Onslow and Mr. F. R. D. Onslow.]

Pararge ægeria, occasionally in lanes; first seen 1886; quite common near the house in recent years, apparently in consequence of the growth of plantations. — *P. megæra*, abundant.

Satyrus semele, common; locally abundant.

Epinephele tithonus, one of the commonest butterflies; very abundant most years, but in 1897 females were scarce, and in 1898 both sexes were only fairly common (Dr. Dixey). — *E. janira*, very abundant; swarming in 1899 (Dr. Dixey noted it on Lundy Island). — *E. hyperanthus*, common but local.

Cænonympha pamphilus, abundant.

LYCÆNIDÆ.

Thecla rubi, several in 1889. — *T. quercus*, two specimens. [Dr. Riding found it "towards Branton."]

Chrysophanus astrarche (*medon*, *agestis*, *artaxerxes*), common. — [*C. circe* (*dorilis*). "At a meeting of the Entomological Society of London on August 6th, 1890, Professor Meldola exhibited a male specimen which had been captured at Ilfracombe in August, 1887. The captor (Mr. O. H. Latter) had supposed it to be a hybrid between *C. phlœas* and one of the 'blues,' and had only recently identified it." — Barrett's *Lepidoptera of the British Islands*, vol. i, p. 62.] — *C. phlœas*, common.

Lycæna argiolus, August, 1900. — *L. icarus* (*alexis*), very abundant, especially 1899.

PIERIDÆ.

[*Colias Hyale*? or *Edusa* var. *Helice*?, one seen flying by Mr. A. L. Onslow, 1899, near Saunton Court, in Branton parish.] — *C. Edusa*, in 1892 common, in 1897 one, in 1899 one, in 1900 common.

Gonepteryx rhamni, not common.

Euchloe cardamines, common.

Pieris napi, very abundant. — *P. rapæ*, abundant. — *P. brassicæ*, very abundant; swarming in 1899. I do not remember to have ever seen butterflies in such numbers as this insect and *E. janira* in that summer.

HESPERIIDÆ.

Hesperia tages, common.

Pamphila thaumas (*linea*), common. — *P. sylvanus*, the commonest of the skippers.

PYRALIDINA.

GALLERIADÆ.

Aphomia sociella (*colonella*).

CRAMBIDÆ.

Crambus culmellus, extremely abundant. — *C. pinellus* (*pinetellus*), two specimens. — [*C. perlellus* (*warringtonellus*), abundant on Lundy Island, 1898, Dr. Dixey.] — *C. geniculeus*, very abundant on Morte Point. — *C. tristellus*, abundant.

PYRAUSTIDÆ.

Notarcha ruralis (*verticalis*).

Phlyctœnia lutealis, common. — *P. ferrugalis*, rather common. — *P. prunalis*. — *P. sambucalis*, one, 1900.

Nomophila hybridalis, abundant; swarming, 1899.

Pyrausta purpuralis (ostrinalis), both forms.—[*P. cespitalis*, Dr. Riding.]—[*Scoparia resinea*, Dr. Riding.]—[*S. murana*, Dr. Riding.] I believe this is the species that is common in my garden.—*S. cembra*, three specimens [Also Dr. Riding.]—[*S. ambigualis*, Dr. Riding.]

Mesographa forficalis.

PTEROPHORIDÆ.

Platyptilia acanthodactyla, also larvæ found by Mr. F. R. D. Onslow.

Pterophorus pentadactylus.

Alucita monodactyla (pterodactyla), common.—[*A. lithodactyla*, Dr. Riding.]

[*Stenoptilia bipunctidactyla*, Dr. Riding.]

Orneodes hexadactyla (polydactyla), abundant, especially in and about the house, on which honeysuckle grows.

PSYCHINA.

ZYGENIDÆ.

Zygæna filipendulæ, very abundant; larvæ were moved from the shore to Twicken, and after a couple of years it was abundant there (also at Lundy Island, near the church, where Mr. Dixey found it abundant).

TORTRICINA.

EPIBLEMIDÆ.

[*Chrosis littoralis*, Dr. Riding.]

Bactra lanceolata, common.

Eucosma betuleana, one specimen.—*E. lacunana*, common.

Enarmonia woberiana, one specimen.

Cydia ramella (paykulliana), two specimens.

Notocelia uddmanniana.

Epiblema penkleriana.—*E. immundana*, common.—*E. tetraquetra*.—

E. solandriana.

Hemimene simpliciana (caliginosana) ?.—*H. acuminatana* ?, one in 1900.

Laspeyresia ulicetana.

Carpocapsa splendana, one, 1901.

TORTRICIDÆ.

Rhacodia caudana, common.

[*Acala hastiana*, Dr. Riding.]—*A. sponsana (javillaceana)*, common among beeches.—*A. literana*, two specimens; this beautiful species has a habit of dropping to the ground when disturbed, and my small experience of it here, and at Ashted Common, in Surrey, leads me to believe that it may be commoner than it appears.—[*A. logiana (tristana)*, Dr. Riding.]—*A. variegana*, very common.—*A. schalleriana (comparana)*, both forms rather common.—*A. contaminana*, scarcely abundant; once taken at sugar.

Caccæcia unifasciana, common in the garden.

Pandemis corylana ?.—*P. heparana*.

Tortrix forskaleana, one specimen, 1901.—[*T. conwayana*, at Braunton.]—[*T. chrysanthemana (alternella)*, Dr. Dixey.]—*T. incertana (subjectana)*.

PHALONIADÆ.

Eusanthis straminea, at sugar.—*E. alternana (gigantana)*.—*E. xagana*, common.—*E. hamana*.

ÆGERIADÆ.

TINEINA.

Trochilium chrysidiforme?, a single specimen, which I can only attribute to this species, seen on the cliff at Woolacombe, when that place was little but a farmstead, September 7th, 1888.

GELECHIIDÆ.

Gelechia notatella.

Recurvaria cinerella?, one specimen.

Chelaria huebnerella (*conscriptella*).

CEOPHORIDÆ.

Depressaria costosa.—*D. umbellana*, common at sugar.—*D. arenella*, at sugar.—*D. subpropinquella* (*rhodochrella*), in thatch.—*D. ocellana*.—*D. alstræmeriana*, in thatch.—*D. applana*, common in thatch; also taken at sugar.—[*D. badiella* (*libanotidella*), Dr. Dixey, 1889].—[*D. albipunctella*, Dr. Dixey, 1889].—*D. heracliana*, both imago and larvæ abundant.—(*D. nervosa*, a specimen at Warcombe, Ilfracombe parish, 1890).

Acompsia pseudospretella, common in houses.

ELACHISTIDÆ.

Endrosis lacteella (*fenestrella*), not common.

PLUTELLIDÆ.

Cerostoma xylostella.—*C. radiatella*, common.

Plutella cruciferarum, common.

Simaethis fabriciana, common.

TINEIDÆ.

Argyresthia andereggiella, this very local species swarms in my orchard.—*A. nitidella*, common.

Adela viridella.

MICROPTERYGINA.

HEPIALIDÆ.

Hepialus sylvinus.—*H. humuli*, abundant.

Twitchen, Morthoe:

October 6th, 1901.

REVISION OF THE NOMENCLATURE OF MICRO-LEPIDOPTERA.

BY THE RIGHT HON. LORD WALSHINGHAM, M.A., LL.D., F.R.S., &c.,

AND
JOHN HARTLEY DURRANT, F.E.S., MEMB. SOC. ENT. DE FRANCE.

(Continued from Vol. xxxvii, page 190).

GELECHIA, Hb.

n. syn. = *PSEUDOCHELARIA*, Dietz.

[*PSEUDOCHELARIA*, Wlsm. MS. Type, *Pseudochelaria pennsylvanica*, Wlsm. M.S.].

PSEUDOCHELARIA, Dietz, Ent. News., XI, 352-3, Pl. I, 3 a, b (1900).

1 (Type). *walsinghami*, Dietz.

2 *pennsylvanica* (Wlsm. MS.), Dietz.

The tentative MS. genus *Pseudochelaria*, Wlsm., was founded on the unpublished species *pennsylvanica*, Wlsm. MS. Dietz (*l. c.*) figured the neurulation of **walsinghami**, Dietz, and sufficiently described the genus in his description of the species to establish the generic name. Although he remarks that the type of the genus is *pennsylvanica*, Wlsm., this observation can only apply to *Pseudochelaria*, Wlsm. MS., the type of *Pseudochelaria*, Dietz, being obviously **walsinghami**, Dietz.

Mr. A. Busck (*i. e.*, 11.III.1901) informs us that **walsinghami**, Dietz, must be referred to *Gelechia*, Hb., it therefore follows that *Pseudochelaria*, Dietz (*nec* Wlsm. MS.), must sink as a synonym of that genus, while *Pseudochelaria*, Wlsm. MS. (*nec* Dietz), being invalid through homonymy, will require a new name.

(*To be continued*).

ON THE SYSTEMATIC POSITION OF *THAUMATONEURA*
INOPINATA, McLACHLAN (ORDER *ODONATA*), WITH SOME REMARKS
ON THE CLASSIFICATION OF THE SUBORDER *ZYGOPTERA*.

BY PHILIP P. CALVERT, Ph.D.,

Instructor in Zoology, University of Pennsylvania, Philadelphia, Pa., U.S.A.

In this Magazine for June, 1897, pages 130-1, Mr. McLachlan described a remarkable Odonate under the name *Thaumtoneura inopinata*, gen. et sp. nov., referring it to the subfamily *Calopteryginae* and to the legion *Amphipteryx*, Selys. The region of the earth whence the unique type came was unknown, but this lack of information was supplied by a second note from Mr. McLachlan, also published in this Magazine, August, 1900, p. 189, to the effect that M. René Martin possessed a specimen from Chiriqui, in Panama.

This note attracted my attention more especially because I have been studying the *Odonata* brought together for Messrs. Godman and Salvin's "Biologia Centrali-Americana," and it became necessary to analyse the species. As M. Martin's specimen was much more complete than the original type, I asked M. Martin for a photograph of it. This he has lately sent me, together with a drawing of the appendages which terminate the abdomen of the male.* Thanks to his kindness, I am able to more intelligently study the questions of classification which the discovery of this insect involves.

* Mr. McLachlan's type specimen has been figured in Biol. Centrali-Americana, Neuroptera, Pl. 3, together with some details from M. Martin's example.

As stated above, Mr. McLachlan considers *Thaumtoneura* a *Calopterygine*. While I hesitate to differ from such a high and excellent authority, I have come to the conclusion that this genus is more closely related to certain members of the subfamily *Agrioninae*. The evidence on either side of this question appears to be as follows:—

In favour of its CALOPTERYGINE affinities.

- 1.—The number of antenodal cross-veins, 3—5.
- 2.—The density of the reticulation, shown not only by the presence of supplementary sectors between all the principal ones, but also by the presence of cross-veins in the post-costal area beginning at, or in front of, the level of the arculus.

In favour of its AGRIONINE affinities.

- 3.—The point of separation of the median sector from the principal sector, which is distinctly nearer ($\frac{2}{3}$ — $\frac{3}{4}$) to the nodus than to the arculus.
- 4.—The position of the nodus, at about one-fifth the length of the wing.

Passing now to discuss these features, character (1) is unquestionably that commonly employed as the chief diagnostic of the *Calopteryginae*, since the *Agrioninae*, with but few exceptions, possess but two antenodal (or antecubital) cross-veins. However, at least two *Agrionine* genera are now known, *Neurolestes*, Selys,* and *Neuragrion*, Karsch,† in which three antenodals normally exist. The lowest number of antenodals hitherto known for the *Calopteryginae* is five in the genus *Micromerus*. Since the number of antenodals in *Thaumtoneura* varies from three to five, we have a complete transition from the *Calopteryginae* to the *Agrioninae* in this particular respect.

(2). I am not aware that any *Agrioninae* show a density of reticulation equal to that possessed by *Thaumtoneura*, but *Megaloprepus* approaches it quite closely in the number of supplementary sectors, and in having the cross-veins of the post-costal area beginning often in front of the level of the apex of the quadrilateral. But since many *Calopteryginae* (legion *Libellago*, *Dictyerias*, etc.) possess a quite simple reticulation, density of reticulation cannot be accepted as a chief *Calopterygine* feature.

(3). The *Calopteryginae* have the point of separation of the median and principal sectors much nearer to the arculus than to the nodus, the reverse being the case in the *Agrioninae*, with the exception of the legion *Lestes*, Selys, in which latter the condition is the same as in the *Calopteryginae*. The nearest approaches among the *Calopteryginae* to the condition found in the *Agrioninae* (exclusive of *Lestes*) seem to be in *Heliocharis*, where the median sector separates at one-third the distance from the arculus to the nodus, and the Japanese *Palaophlebia*, Selys,

* A West African form, of the legion *Podagrion*, Selys, having three antenodals on all the wings, the third one placed between the other two of most *Agrioninae*. Mem. Couron. Acad. Sc. Belg., xxxviii, p. 70, 1886.

† Also of the legion *Podagrion*, from Ecuador, having three antenodals on the hind-wings only, the third being likewise median and confined to the subcostal space. Soc. Ent., vi. p. 106, 1891.

where the median sector arises at one-half that distance. As regards the number of antenodals, *Heliocharis* and *Palæophlebia* are typical *Calopteryginae*.

(4). The position of the nodus varies in both the *Calopteryginae* and the *Agrioninae*, but in general it is farther from the base of the wing in the former than in the latter. Among the first-named it is probably nearest the base (one-third the wing-length) in *Amphipteryx* and in *Chalcopteryx*, among the second group it is farthest from the base (more than one-third the wing-length) in *Archilestes*. No *Calopteryginae* have the nodus as near to the base as one-fifth the wing-length, but many *Agrioninae* have it in that position.

On the whole, therefore, I believe that *Thaumatoneura* is rather *Agrionine* than *Calopterygine* in its affinities.

The question next arises, to what *Agrioninae* is it most closely related? The existence of a "true" pterostigma, of supplementary sectors, of forcipated superior appendages in the male, as well as the shape of the quadrilateral, place *Thaumatoneura* in the legion *Podagrion*, Selys. The nearest ally therein is *Paraphlebia*, Selys, of Mexico and Central America, which of all others of this legion has the most complicated reticulation, and which, like *Thaumatoneura*, has two submedian cross-veins (two nervules in the lower basal cell), the nodus at one-fifth the length of the wing, the post-stigmatal area densely reticulated, the arcus at the second antenodal, the nodal sector arising at about the middle of the length of the wing, the subnodal at about the nodal point, the median before the nodus [in *P. hyalina*, teste Brauer], and very short inferior appendages in the male. Differences between *Thaumatoneura* and *Paraphlebia* exist in the number of antenodals, the length of the quadrilateral, the shape of the pterostigma, the exact relative positions of the submedian cross-veins, and the point where the wings cease to be petioled. None of these differences, however—after what has been said on the number of antenodals—seem to me to be of greater than generic value.

But *Thaumatoneura* raises other questions more difficult of solution. Any one who accepts my conclusion that this genus is more *Agrionine* than *Calopterygine* must also abandon the old distinction between these two subfamilies based on the number of antenodals. Failing this, the next available character is that offered by the point of origin of the median sector, and this gives us the following result:—

Median sector separating from the principal nearer to the arcus than to the nodus (half-way in *Palæophlebia*).

Antenodals five or more, cross-veins in the postcostal area beginning before the level of the apex of the quadrilateral (except in some *Diphlebia*).

CALOPTERYGINE.

Antenodals two, cross-veins in the postcostal area beginning at the level of the apex of the quadrilateral.

Legion *Lestes*, Selys, of the AGRIONINÆ.

Median sector separating from the principal much nearer to the nodus than to the arculus.

Antenodals two to five, but usually two.

AGRIONINÆ exclusive of the legion *Lestes*.

We must consequently determine what position to assign to *Lestes*. Many courses are open, but only two seem to me worth considering at the present time. 1. To regard all the *Zygoptera* as but a single group, in which case the various "legions" of the *Calopteryginæ* and the *Agrioninæ* (both terms *sensu Selysii*), as well as the legion *Lestes*, might rank as equal and co-ordinate sub-groups, and it would make little difference whether these sub-groups were termed "legions" or "sub-families." 2. The legion *Lestes* might be considered as co-ordinate with the Selysian *Calopteryginæ* and *Agrioninæ* (excl. *Lestes*), in which case they would be properly termed *Lestinæ*. This course seems to me to be the better until some future, thorough-going revision of the structure, of both the nymphs and the adults, of all the groups of *Zygoptera*, of all parts of the world, shall give us a fuller knowledge of relationships.

Pertinent to the present topic is the recent suggestion of Mr. Kirby that a new genus from the island of Hainan, which he has described as *Pseudolestes* (Ann. and Mag. Nat. Hist., June, 1900, p. 537), "should certainly form the type of a new sub-family" (*l.c.*, p. 538). I am quite unable to agree with Mr. Kirby in this conclusion, for colour and general shape, to which he appeals, do not constitute subfamily characters. The straightness of the wing-sectors is paralleled in *Ortholestes*, Calvert, and perhaps also in *Orolestes*, McLachlan, and the pterostigma is not sufficiently different (to judge from the figure) from that of various *Lestine* genera. Only in two features does *Pseudolestes* differ from all other *Lestinæ*, and these are that the hind-wings are one-third shorter than the front wings, and that the quadrilateral is oblong, not oblique on the apical end. In this latter feature we have an approach to various *Calopterygine* and *Agrionine* genera, but on the other hand *Ortholestes* again furnishes a connecting link with *Archilestes*, *Megalestes* and *Lestes*. Without hesitation, therefore, I place *Pseudolestes* in the legion *Lestes*, of Selys, or, to use the proposed new term, in the subfamily *Lestinæ*.

TRICHOPTERA, PLANIPENNIA, AND ODONATA
COLLECTED BY LORD WALSLINGHAM IN THE VICINITY OF
GRANADA (SPAIN) IN 1901.

BY ROBERT McLACHLAN, F.R.S., &c.

During his recent visit to Spain (so pleasantly narrated in our No. for October, 1901) Lord Walsingham was good enough to collect a few "*Neuroptera*" for me near Granada, and I have found them very useful. The district had previously been worked by Rambur and Edouard Pictet, so much of the materials is only confirmatory of their reports, but several species will be found in the list given below that were not noticed by them.

TRICHOPTERA.

Micropterus testacea, Gmel.—May 31st, 1 ♂.

Oligoptectrum maculatum, Oliv., also noticed by Rambur.—4 examples, May 21st and June 4th.

PLANIPENNIA.

MYRMELONIDÆ.

Palpares hispanus, Hag.—2 ♂ and 2 ♀, middle of June.

Creagris plumbeus, Oliv.—3 ♀, May 27th and middle of June.

ASCALAPHIDÆ.

Bubopsis agrioides, Ramb.—1 ♂, June 22nd. For more than thirty years I had been endeavouring to procure this species, but in vain.* A careful study is necessary in order to decide in what way or what degree this differs from *B. la-matus*, Klug, of Eastern Europe, Asia Minor, &c.

Ascalaphus ictericus, Charp.—2 ♂, May 27th, middle of June; also taken by E. Pictet.

MANTISPIDÆ.

Mantispa styriaca, Poda.—1 ♀, June 22nd. This species is cited from Spain by Burmeister, but I had never seen a Spanish example. The ordinary species of that country appears to be *M. perla*, Pallas.

HEMEROBIIDÆ.

Megalomus pyraloides, Ramb.—5 examples, June 16th and July 2nd. I am of opinion that the small meridional species ordinarily included in *Megalomus* need careful study, especially with regard to the male appendages.

Hemerobius subnebulosus, Steph.—1 ♀, May 17th.

CHRYSOPIDÆ.

Nothochrysa stigmatica, Ramb.—1 example, June 19th. Spread through the Mediterranean region to Asia Minor, and possibly through Central Asia to the Himalayas, for I have examples of the same or a representative species thence.

Chrysopa Genei, Ramb.—1 example, June 22nd; reported also by Pictet.

By a singular coincidence, only a few weeks after I had received this example, Dr. Chapman gave me another, taken by him last summer at Cuenca.

ODONATA.

Libellula depressa, L.—1 ♀, middle of June; of large size.

Gomphus simillimus, Selys.—1 ♀, middle of June.

Sympyga fusca, V. d. Lind.—1 ♂, June 19th. This was but little known as a Spanish insect. [Dr. Chapman brought numerous examples of it from Cuenca.]

Lewisham, London :

December 22nd, 1901.

TRICHOPTERA, PLANIPENNIA AND PSEUDO-NEUROPTERA
COLLECTED IN NORTH WALES IN JULY. 1901.

BY KENNETH J. MORTON, F.E.S.

While the beautiful district of North Wales seems to possess some resident Entomologists, and is no doubt visited by many tourist Entomologists, I do not think it has ever been seriously investigated by any one making the collection of insects of the above Orders his primary quest. This was one of the reasons which led me to spend a holiday in Merionethshire this year.

Our headquarters were at Egryn, a place situated between Barmouth and Harlech, and the chief collecting was done between these points, the localities being the small bogs lying close to the sea, the springs and streamlets running into and the ditches intersecting the Morfa, the rapid waters and torrents running through the small valleys—these valleys being wooded in their lower parts—and the lakes which give rise to certain of these streams. Wider excursions, such as the ascent of Snowdon and Cader Idris, although undertaken with light entomological equipment, for several reasons, yielded nothing in my way; indeed, none of the higher points were productive.

All the waters of the district are very clear—a feature no doubt due to the geological conditions—and there is a uniformity of character about them which seems to have a restricting influence on the number of species they produce. At any rate, during the month's stay, the species of *Trichoptera* taken reached a total rather under the average to be looked for in a good British locality. At the same time the conditions favour certain species which are not usually common, *Adicella reducta*, McL., being an almost ubiquitous species round Egryn, occurring at streams of different sizes; *Plectrocnemia geniculata*, McL., apparently entirely replacing its better known congener *consersa*, Curt.; and *Polycentropus Kingi*, McL., in the shaded parts of the stream it haunts, a commoner insect than the usually never failing *P. flavomaculatus*, Pict.

A torrent which comes down from the hills behind the house, in summer runs to earth before it reaches the Morfa. The water wells up again in the sloping fields above the railway, under which it goes, and is then carried across the Morfa in ditches, these ditches being in parts grown up with water weeds; and in some places where drainage is either impracticable or has not been attempted, patches of swampy bog exist. The greatest number of species were found in this area. In the late evening hosts of caddis flies were about here. *Phryganea varia*, F., in a small way, seemed to assemble like *Hydropsyche*; *Limnophilus hirsutus*, Pict., flew for a short time, just as it was getting dark, and at the same hour *Ecclisopteryx guttulata*, Pict., *Lepidostoma hirtum*, F., and *P. geniculata*, McL., were on the wing. *Hydropsyche instabilis*, Curt., was usually in abundance a little earlier in the evening. During the day other species were to be taken by sweeping, or in flight, such as *Sericostoma personatum*, Spence (a most abundant insect in several of the localities), *Leptocerus aterrimus*, Steph., *Mystacides azurea*, L., *Trienodes bicolor*, Curt., *Adicella reducta*, McL., *Æcetis lacustris*, Pict. (one), *Polycentropus multiguttatus*, Curt. *Holocentropus picicornis*, Steph., *Agapetus fuscipes*, Curt., together with numerous examples of *Hydroptilidæ*, but only comprising *Hydroptila occulta*, Etn., *Oxyethira simplex*, Ris, and *falcata*, Mort. When it is remembered that in Wigtownshire I captured nine species of the last named family, while in Wales I only took four, it will be seen that the representation here is very poor.

The torrent above the house produced abundance of *Odontocerum albicorne*, Scop., also *Philopotamus montanus*, Donov., *Diplectrona felix*, McL., *Hydroptila forcipata*, Etn., and at a tiny waterfall on its course, *Tinodes assimilis*, McL. *D. felix* was also common at a rill running alongside the public road near Tal-y-bont.

The lakes visited were not very productive in species. The charming Llyn Cwm Bychan gave a few *lacustrine* species, such as *Limnophilus rhombicus*, L., and *marmoratus*, Curt., *Cyrnus trimaculatus*, Curt., and *flavidus* McL. A stream near the lake produced *Chimarra marginata*, L., in abundance, and the river Artro, *Hydropsyche lepida*, Pict. Llyn-irddyn, another lake, gave multitudes of *Leptocerus fulvus*, Ramb., and *Tinodes wæneri*, L.; and the fine stream, the Ysgethin, which unites the waters of Llyn-irddyn and Llyn-bodlyn, was frequented by *Philopotamus montanus* in a form which is practically the var. *scoticus*. On the lower parts of this stream, *Æcetis testacea*, Curt., abounded, and here also was found

Polycentropus Kingi, McL. At springs on the banks of the stream *Orunæcia irrorata*, Curt., was just emerging.

Examples were also taken in different localities of the following species: *Grammotaulius atomarius*, F., *Limnophilus centralis*, Curt., *affinis*, Curt. (confined to a yew tree in a shady part of the garden), *sparsus*, Curt. (in the garden), *L. auricula*, Curt., *Goëra pilosa*, F., *Silo pallipes*, F., *Beræa maurus*, Curt., *B. pullata*, Curt., and *Polycentropus flavomaculatus*, Pict.

In *Chrysopidæ*, *Chrysopa flavifrons*, Brauer, was in very great abundance. The other species found were *flava*, Scop., *ventralis*, Curt., *alba*, L., and *aspersa*, Wesm. At first, *Chrysopæ* held the field to the utter exclusion of the genus *Hemerobius*, and it was only towards the end of my stay that I gathered a few *Hemerobii*, including *H. subnebulosus*, Steph., *nervosus*, F., *stigma*, Steph., *lutescens*, F. and one *quadrifasciatus*, Reuter, ♀.

With regard to *Odonata*, the Morfa proved to be the best collecting ground, but even here at the end of the month it was practically deserted by these insects. In the earlier part of July *Pyrrosoma tenellum*, Vill., was accompanied by a good many *Agrion pulchellum*, V.d.L., and of course swarms of *Ischnura elegans*, V.d.L. One *Lestes sponsa*, Hans., was found near the end of the month. Other species to be found about the Morfa were *L. quadrimaculata*, L., *Orthetrum cærulescens*, F., *Sympetrum striolatum*, Chp., an occasional *Cordulegaster annulatus*, Latr., and *P. nymphula*, Sulz. One day a good many adult *Libellula depressa*, L., ♂♂, appeared, and three were taken; the species was never seen again. *Calopteryx virgo*, L., was exceedingly common at several of the streams. *Enallagma cyathigerum*, Chp., was found at Cwm Bychan and at a lake near the foot of Snowdon. The only species of *Æschna* seen was *juncea*, L.; it was rather common in the glens. There was no uncertainty about the identification; I did not want them, but took two or three to prevent question. Of course such insects as *O. cærulescens*, *C. annulatus*, and *S. striolatum* were not confined to the Morfa, but were found in many other places.

For the first time on my excursions I paid some attention to the *Psocidæ*, but for these insects the great heat and drought were too much. My captures included *Psocus longicornis*, L., *P. sexpunctatus*, L., *P. bifasciatus*, Ltr., *Elipsocus unipunctatus*, Müll., and *E. cyanops*, Rost.

HISTORICAL NOTES ON *PAPILIO MACHAON* IN ENGLAND.

BY C. W. DALE, F.E.S.

This grand butterfly appears now to be confined to Wicken Fen, Cambridgeshire, and Ranworth and other Broad, Norfolk.

Last year one was taken at Castle Cary, Somerset. The editorial note to the last (*Ent. Mo. Mag.*, vol. xii, 2nd series, p. 172) sustains the idea of a small sporadic immigration in 1900, as many specimens were taken and scattered over a large area.

The counties in which it formerly existed, and from all of which it has, apparently, disappeared, are Dorsetshire, Somersetshire, Gloucestershire, Glamorganshire, Hampshire, Surrey, Oxfordshire, Middlesex, Sussex, Kent, Essex, Suffolk, Northamptonshire, Yorkshire, and Huntingdonshire.

It was known to be a British species nearly two hundred years ago, as the Rev. John Ray, in his "*Historia Insectorum*" (1710), records finding it in Sussex and Essex, and that he found the caterpillar in Sussex feeding on *Pimpinella saxifraga*. Petiver also, in 1717, records it as being caught about London and in divers counties in England; he called it the Royal William. Wilkes also states that this fine butterfly may be taken in meadows and clover fields about Cookham, near Westram, in Kent, and that on August 5th, 1748, he observed a female hovering over some plants, which he found to be the meadow saxifrage, and discovered four eggs just laid. The first brood appears in May, the second towards the end of July.

In "*White's Natural History of Selborne*" is a comparative view of the Calendar of Selborne, kept by the Rev. Gilbert White, at Selborne, in Hampshire, and William Markwick, Esq., at Catsfield, near Battle, in Sussex. In it we read "Swallow-tailed Butterfly appears August 2nd -- White; April 20th, June 7th, last seen August 28th—Markwick. 1794."

In the end of June, 1798, several larvæ were found by the Rev. Dr. Abbott, at Windlesham, near Bagshot, in Surrey; from these in the following August he reared some splendid swallow-tails. It was also taken in that century by the Rev. William Ray, to whom Mr. Harris dedicated his plate of the swallow-tail in 1766, at Redland, near Bristol, in Gloucestershire, and at Middleton, in Yorkshire.

In his "*Lepidoptera Britannica*," 1803, Haworth writes: "I know that *Machaon* breeds near Beverley, in Yorkshire yet, and my brother-in-law, R. Scales, of Walworth, near London, possesses a specimen of it which was taken there about seven years ago."

Between the year 1800 and 1815 several were taken in Dorsetshire; at Hinton Martel, by the Rev. D. Storey; at Charminster, by Mr. Garland; at Wimborne, Blandford, Hazlebury, Bryan, and Glanvilles Wootton, by my father, the last being on August 17th, 1815. At Glanville's Wootton, in August, 1808, he took twelve specimens in three consecutive days. They frequented chalk hills, and smelled strongly of mint. About the same time the Rev. C. Kingsley, LL.D., met with it in great plenty in Cowslip Meadow, near Lymington, in Hampshire; and it was also taken in Glamorganshire, at Penclawdd and Llanghor, by J. D. Llewelyn, Esq.; and in Oxfordshire, by Mr. Stone. The Rev. M. Newman also met with it at West Camel, and the Rev. R. Burney at Rympton, in Somersetshire. Mr. W. Skrimshire took it in plenty at Wisbech, in Cambridgeshire; and his brother, Dr. F. Skrimshire, near Peterborough, in Northamptonshire; and it was also taken in great plenty by my father at Whittlesea Mere in 1814.

Stephens, in his "Illustrations," 1828, writes : "*Machaon* is not an uncommon English insect, especially in the fenny counties of Huntingdon and Cambridge, in some parts of which it occurs in the utmost profusion ; it has sometimes been captured also close to London, in Epping Forest, at Stepney, and near Peckham ; and it was formerly abundant at Westerham, in Kent. Mr. Dale has frequently taken it at Glanvilles Wootton, and in other parts of Dorsetshire. It has also occurred as far north as Beverley, in Yorkshire, and as far west as Redland, near Bristol."

Machaon also used to occur at Freshwater, in the Isle of Wight, where it was taken by Capt. Bray ; and at Tottenham Green, Middlesex, where Mr. E. Newman repeatedly found the caterpillar feeding on rue in a garden, probably in 1820.—Newman's "Butterflies." It was also very abundant at Whittlesea Mere in 1833 ; and the Messrs. Paget records it as being very abundant in meadows at Oby and Thurne, Norfolk, in May and August, 1834.—"Sketch of Yarmouth."

Mr. Stainton, in Ent. Trans. for 1858—61, writes : "*Machaon* occurs in the fens near Cambridge, and near Norwich, but we know of no other localities, though a few specimens have occurred at Pulborough, in Sussex, and at Herne Bay, in Kent."

"Dr. Knaggs, in his "*Macro-Lepidoptera* of Folkestone," 1870, in a foot-note on p. 12, writes : "*Machaon* has been met with year after year on the East Cliff, Dover, beyond the Castle." Specimens have also been met with at Deal. These are of much darker hue than the East Anglian, and probably flew over from the Continent.

Mr. Gaze, in the "Entomologist," for 1842, p. 340, records *Machaon* as having been several times taken at Haverhill, in Suffolk. It has also been taken near Ipswich, on the banks of the Stour, and near Clare Priory, in 1867 and 1869.

Mr. Barrett, in his "*Lepidoptera* of Norfolk," 1874, records it as being found in all the fens of the rivers Yare and Bure, and adds : "There is reason to hope that this splendid species may survive to a very distant date."

Machaon is still common in Wicken Fen, Cambridgeshire, but not in Chippenham Fen only a few miles away. It used also to occur at Cherry Hinton, Grandchester, Madingley, and in Burwell Fen, which was drained in 1842. Whittlesea Mere, Huntingdonshire, was drained in 1851.

Although the foregoing remarks have in part appeared in my "History of British Butterflies," I thought that some readers of this Magazine who have not seen that book might be interested in them.

Glanvilles Wootton :
November, 1901.

Coleoptera, &c., in the neighbourhood of Hastings.—Very limited leisure during the last three years has prevented my doing much collecting, but the few excursions I have been able to take have not been altogether unproductive of good things.

Bexhill has yielded half-a-dozen *Cænopsis fissirostris* and two *Rhynohites aneovirens*, among other species, the former among roots of heather. In wet ground at Winchelsea I have taken a few each of *Panagæus cruz-major*, *Oodes helopioides*, *Badister peltatus*, and *B. unipustulatus* ; while amongst some miscellaneous *Hydroperi* in one of my boxes I found, this summer, a single specimen of *H. marginatus*,

labelled "Winchelsea, June, '96." On reference to my note-book I find it must have been taken about June 18th, but as I visited a good many ditches in search of *Coccidula scutellata*, which I used to take in a water-net, I do not know the exact locality. The one visit I was able to make this year in search of it was fruitless, as far as the object of my search was concerned, but resulted in my turning up *Laccophilus variegatus* again. I have previously taken this only at Pevensy. In June, 1900, I visited Pevensy in search of *Bagòus nodulosus*, and after lying by the ditch-side with my head lower than my heels, till I was on the verge of apoplexy, was rewarded by the sight of *B. cylindrus* crawling up from the depths along a blade of grass. Persistent searching during the remaining time at my disposal yielded no second specimen, though I managed to secure a single *Oodes*, and, later, one *B. nodulosus*. Among a few *Trachyphlaeus myrmecophilus* which I took here in September, in company with Mr. F. B. Jennings, was one specimen with the left deciduous mandible still adhering.

My latest capture this year, so far, is *Sphinx convolvuli*, of which I caught a specimen on October 15th flying round the electric light. It was in magnificent condition, as far as "plumage" is concerned, though it had lost the left antenna and anterior tarsi.—W. ESAM, Eagle House School, St. Leonards-on-Sea: December 9th, 1901.

Re-occurrence of Sciocoris cursitans, F., at Box Hill.—In August, 1897, I found a single specimen of this curious little Pentatomid at the roots of a plant (since identified as *Hypericum perforatum*) at Box Hill (*cf.* Ent. Mo. Mag., 1898, p. 13). Although frequent visits were paid to the locality subsequently, no further specimens turned up till August and September last year, when I had the pleasure of finding several small colonies of the species in some rough and very stony ground, much overgrown with stonecrop, and with patches of wood sage (*Teucrium*) scattered here and there on another slope of the hill. *Sciocoris* was evidently well established in this spot, as I found quite a fair number of both larvæ and imago; they occurred chiefly in the crevices of the chalk flints at and near the roots of bushy plants of the wood sage, in which situations the short form and flattish shape would certainly seem to be of advantage. None were to be found amongst the numerous luxuriant beds of stonecrop. The existence of this Surrey station for *S. cursitans* is of interest to British Hemipterists, as the only other locality known for it in our islands is the stretch of coast between Deal and Sandwich, where I and others have taken it under *Erodium*, and in sand holes. It seems not improbable that *S. microphthalmus*, Flor, may eventually turn up in some hilly spot in the South of England, as Puton, in his "Synopsis des Hém.-Hét. de France," especially indicates this species from elevated places, and records it from as far north as Paris; he describes it as "assez rare" in France.—F. B. JENNINGS, 152, Silver Street, Upper Edmonton, N.: January 8th, 1902.

Reviews.

HAND-BOOK OF THE NATURAL HISTORY OF GLASGOW AND THE WEST OF SCOTLAND (Fauna, Flora, and Geology of the Clyde Area); 8vo, pp. 567. Glasgow, published by the Local Committee for the British Association, 1901.

For many years it has been a laudable practice with the Local Committees of the British Association to publish a Natural History Hand-book for the particular district in which such Meetings are held; this has been carried out with very few exceptions. When the Association met at Glasgow in 1876 a very respectable Hand-book was issued. The present far eclipses it. It consists almost wholly of Lists, with localities and remarks; one is lost in amazement at the amount of work indicated by these Lists, contributed by probably over sixty workers. We cannot do more than allude to the Entomology. The *Hymenoptera* are compiled by Mr. DalGLISH (*Terebrantia*) and Mr. Malloch (*Aculeata*); *Macro-Lepidoptera* by Mr. DalGLISH; *Micro-Lepidoptera* by Mr. King; *Diptera* by Mr. Grimshaw (the *Tipulidæ* by Mr. Henderson); *Coleoptera* by Mr. Fergusson; *Trichoptera*, *Odonata*, *Orthoptera*, and *Neuroptera-Planipennia* by Mr. King; *Hemiptera-Heteroptera* by Mr. Murphy; *Homoptera* by Mr. Taylor; *Collembola* and *Thysanura* by Mr. Boyd; and the *Arachnida* have received attention from Mr. Evans. All seem to have been equally zealous in endeavouring to make what they undertook as complete as possible. But some few groups are omitted, and occasionally it is hard to say why. A numerical summary of the species under each Order or group would have been of interest, and especially if made comparative with the Hand-book of 1876, for here and there the two publications do not seem to dovetail. We should not forget to mention that a very elaborate bathy-orographical map of the district is included, which in itself is always useful.

INSECT LIFE: SOUVENIRS OF A NATURALIST: by J. H. FABRE (translated from the French). Pp. xii and 320, 8vo. London: Macmillan and Co., Limited. New York: The Macmillan Company. 1901.

Possibly two mistakes have been made in bringing the proposed English translation of M. Fabre's works before the public. The first is the title: in the original French it stands as "Souvenirs Entomologiques," and might have been rendered as "Entomological Souvenirs." The second is the over-weighted title-page, from which we learn, all in nearly the same type (1) that the work is by M. Fabre, (2) that it has been translated by some one who prefers anonymity, (3) that a preface has been written by Dr. Sharp, (4) that it has been edited by Mr. Merrifield, and (5) that the (original) illustrations are by M. Prendergast Parker. But all this cannot spoil a good book. There is much truth in the saying that "good wine needs no bush," still it is only somewhat tardily that the merits of M. Fabre have received recognition, even amongst his own countrymen. Too modest, and possibly too poor, to seek a position amongst entomologists, he preferred to go on making valuable observations, and publishing them from time to time in small volumes (there are now seven, and this is the first) under the title of "Souvenirs." They did not appeal to the systematist, and were neglected by the biologist, from the form in which they were published and a certain amount of obscurity that enveloped the author. The Entomological Society of London did itself honour by electing him one of its Honorary Fellows last year. The great charm of the author lies in his style and the transparent evidence of sincerity and conscientiousness. It must now be nearly twenty years ago since we read, and hope we comprehended, this first volume in the original French. And here, *en passant*, just a word of recommendation to those who can, or think they can, read the book in it

original form. Let them do so by all means. The translation with slight exception has been admirably done, but, as Dr. Sharp observes, Fabre is "the most Gallic of Frenchmen," and about as difficult to translate into a foreign language as are the works of one or two popular English writers on quite other subjects. The editing has been carefully done, and the illustrations are appropriate. To those who are quite strangers to the work we may say that this first vol. (and also many of the succeeding) is largely taken up with the habits of Hymenopterous insects in the most marvellously graphic form in every minute detail. But there is much about beetles, and the very first chapter is an amusing one on the "sacred" beetles. For more general subjects we call special attention to the "Ascent of Mont Ventoux" as a record of a bit of mountain climbing and adventure, and also to the amusing episode (pp. 272—273) on the way in which elementary physics were taught in the minor French colleges (were we much better here?) in former times. This is not a book to be read through and then placed on the library shelf and forgotten. It is one to lie on the work-table, to be taken up and read by snatches over and over again, till one has practically learnt it by heart.—R. McL.

Obituary.

Charles Lionel Augustus de Nicéville, State Entomologist for India, C.M.Z.S., F.E.S., &c., died at Calcutta, after a few days' illness of malarial fever, on December 3rd, 1901, aged 49. We are not acquainted with his early history, but he is said to have gone to India about 1870. For many years he held a clerkship in a Government office in Calcutta, but the whole of his spare time was devoted to Entomology, and until quite recently almost entirely to *Rhopalocera*, commencing so long as 1881. His publications were very numerous, and sometimes in conjunction with others, such as Mr. Elwes, Mr. Taylor, Prof. Wood-Mason, Dr. Martin, and Major Marshall. With the latter he brought out "The Butterflies of India, Burmah and Ceylon," an important work in 3 vols. but incomplete, published at Calcutta from 1882 to 1890. We believe Mr. de Nicéville contemplated leaving India in a few months and settling in this country. His fine collection of Eastern Butterflies has been acquired by the Indian Museum.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *November 18th*, 1901.—Mr. A. H. MARTINEAU, in the Chair.

Dr. Stacey Wilson, Wyddrington, Edgbaston; and Mr. E. A. L. Verecroft, Coventry; were elected Members of the Society.

Mr. Colbran J. Wainwright showed the Tachinid *Brachychata spinigera*, Rond., from near Hampton-in-Arden, and said that this was the species which had been described by Meade as *Desvoidia fusca*, and not *Staurochata gracilis*, Egg., as supposed by Brauer and von Berganstamm.

Mr. G. W. Wynn showed a number of *Lepidoptera* taken by himself in South Devonshire during the last week of August and first of September this year; amongst others were *Lithosia caniola*, Hb., three worn specimens; *Leucania albipuncta*, F., one only; *Caradrina exigua*, Hb., two specimens; *C. ambigua*, F., a nice

long series in very fine condition; *Heliothis armigera*, Hb., worn; *Aspilates ochrearia*, Rossi (*citraria*, Hb.), a nice long series; *Acidalia subsericeata*, Haw.; and a very fine long series of *A. marginipunctata*, Goeze. Mr. A. D. Imms, mounted preparations and drawings of marine larvæ, which he believed belonged to the genus *Clunio*, Hal., and which were taken submerged in rock pools at Port Erin Bay, Isle of Man. Mr. J. T. Fountain, *Lepidoptera* from Jersey; a series of *Callimorpha quadripunctaria*, Poda (*Hera*, L.), including forms running into yellow; a long and very variable series of *Bryophila muralis*, Forst.; and a very fine series of *Præcadia bipunctella*, F. The last species he said was found early in the morning, and the earlier they were looked for the more there were; the greater number being found at 6 a.m. Mr. R. C. Bradley, a series of the Syrphid *Pelecocera tricincta* from Bournemouth, taken this summer; this time he found them on the cliffs, not in the hollows of the Chines, as before.

December 16th, 1901.—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

Mr. A. H. Martineau showed *Hymenoptera* from Tubney, near Oxford, in Berks, a sandy locality; they included *Cleptes pallipes*, Lep.; *Crabro palmaris*, Schreb., ♂, and *Nysson dimidiatus*, Jur. Mr. A. D. Imms showed empty cocoons and pupal cases of *Ecophora sulphurella*, Wd., from Moseley. Mr. G. T. Bethune-Baker, a collection of *Lycænidæ*, of the sub-families *Liptenæ* and *Pentilæ*, from South Africa; they are remarkably mimetic, resembling in greater or less degree many widely different forms of *Lepidoptera*, some were almost perfect mimics of *Acraidæ*, others resembled strongly *Pieridæ* and various *Geometridæ*; though the object of some of these last resemblances was difficult to understand. Mr. Colbran J. Wainwright, a small collection of Chrysidæ, including *Chrysis viridula*, Smith, from Wyre Forest, *C. succincta*, L., from St. Ives, Cornwall, *C. pustulosa*, Ab., from West Hide, near Hereford, *Hedychridium roseum*, Rossi, from West Runton, Norfolk, and *Ellampus cæruleus*, Dhlb., from West Runton and West Hide.—COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: Dec. 9th, 1901, in the Grosvenor Museum, Chester, where the Members were most cordially received by the Curator, Mr. Robert Newstead, F.E.S., and Dr. H. Dobie. The Vice-President, Mr. R. WILDING, occupied the Chair.

The Chairman, on behalf of the Society, thanked Mr. Newstead for his handsome donation to the library of a copy of the first vol. of his work on the Scale Insects, entitled, "A Monograph of the British *Coccidæ*." The work, purely a labour of love, is not only of great interest to the scientist as being the first Monograph of these injurious insects ever published in this country, but is also of great practical value to the fruit grower, and it would be well if a copy of it could be placed in the hands of every market gardener and horticulturist throughout the land. The following exhibits were examined:—Recent specimens of *Lycæna Arion*, and Welsh specimens of *Saturnia pavonia* by Mr. Newstead; British *Aphodii*, including *A. villosus*, and *Egialia rufa* by Mr. Wilding; *Trigonogenius globulus*, an introduced Coleopteron, new to the Cheshire list, on behalf of Mr. E. J. Burgess Sopp; rare Aculeate *Hymenoptera* from Cheshire and N. Wales, including *Pompilus approximatus*, *Astata stigma*, *Oxybelus mucronatus*, *Vespa austriaca*, *Colletes cuni-*

cularia, *Halictus atricornis*, *Osmia xanthomelana*, *O. inermis*, and *O. parietina*, by Mr. Willoughby Gardner. The exceedingly rare *Ophiodes lunaris*, taken in Delamere Forest by Mr. T. Wright, of Warrington; an account of this capture, establishing its genuineness beyond all doubt, was given by Mr. Joseph Collins, along with a summary of all the previous British records; a fine series of *Lepidoptera* from Simondswood Moss, including *Carsia imbutata* and *Celæna Haworthii*, by Dr. J. Cotton. Mr. Newstead then gave a paper, entitled, "Entomological gleanings from my diary," which was illustrated by electric light views. As usual, it was exceedingly instructive, almost every sentence containing some new observation or fact in insect economy, so that this most wide-awake of naturalists kept his hearers on the alert all the time. The paper included the following subjects:—A night in Delamere with an electric arc lamp; the occurrence of *Zeuzera asculi* in Cheshire; the assembling of *S. pavonia*; jays and the larvæ of *G. papilionaria*; the genus *Sesia* in Delamere; *Tipula oleracea* and its ravages, how the rooks and gulls destroy it by thousands, 400 being found in a single "casting" of the black headed gull; the life history of *Selandria atra*, or Pear Tree Sawfly, and Recent researches amongst the Scale insects. Hearty thanks were offered to Mr. Newstead by Mr. R. Wilding, Dr. J. W. Ellis, and Mr. W. Gardner.—FREDERICK BIRCH, Hon. Sec.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
Nov. 28th, 1901.—Mr. W. J. LUCAS, B.A., F.E.S., Vice-President, in the Chair.

The evening was set apart for a special exhibition of varieties and notable captures. A considerable number of members and friends attended, and a large number of specimens were exhibited.

Mr. Carpenter exhibited a long and fine bred series of *Colias Hyale* from ova laid by a ♀ from Sheerness, taken August 18th, 1900. Mr. Lucas, ♂ and ♀ of the rare British dragon-fly, *Libellula fulva*, taken near Bournemouth by Major Robertson; ♂ *Oxygastra Curtisi* from the same district; and ♂, ♀, and ♀ var. *aurantiaca* of *Ichnura elegans* from the New Forest. Mr. Ashdown, extreme variations in size of the following *Coleoptera*:—*Clytus arietis*, *C. mysticus*, *Molorchus minor*, and *Pachyta cerambyciformis*. Mr. West, a species of *Homoptera*, *Stictocoris flaveolus*, new to the British list, and taken by himself at Blackheath in August and September, 1901. Mr. Thornthwaite, a dark *Hybernia defoliaria*, taken by him on his way to the meeting. Mr. W. J. Kaye, a beautiful series of *Ambulyx rostralis*, a S. and Central American SpHINGID, with specimens of var. *ganascus*, which some consider a species; also a single specimen of a new species of *Ambulyx*, which he had taken during the past summer while on an expedition to the interior of British Guiana. Messrs. Harrison and Main, varied series of (1) *Triphæna comes* from several localities, including the Isle of Lewis; (2) *Agrotis tritici*, from the Isle of Lewis and Wallasey; (3) *Odontopera bidentata*; (4) *Camptogramma bilineata*; (5) *Melanippe sociata*, all from the Isle of Lewis. Mr. R. Adkin, several of the same species from the Isle of Lewis, with *Noctua xanthographa*, particularly fine and varied *Boarmia repandata*, *Coremia ferrugata*, and *Xylophasia monoglyphæ*; he also showed an example of *Pieris Daplidice*, with *Colias Hyale* and *C. Edusa* taken at Eastbourne, 1901. Mr. Montgomery, a very fine bred series of *Pieris napi*, including a number of fine examples of var. *bryoniæ*, from ova laid by a female

taken by Mr. Harrison at Meyringen, July 9th, 1900; a series of bred *Leucophasia sinapis*, consisting of four broods from ♀s sent alive to him; and bred series of *Argynnis Paphia*, and var. *Valezina* from New Forest ova. Mr. Porritt, black forms of *Phaethra menyanthidis* from Selby; *Mania typica*, with a large, pale, pinkish, V-shaped mark across each wing; *Cosmia trapezina*, with central band dark olive-green; black *Larentia multistrigaria*; a yellow *Anchocelis rufina*; and a black *Odontopera bidentata*; all from Yorkshire. Mr. Garrett, *Sphinx convolvuli*, from Wilts, September, 1901; *Miselia oxyacanthæ*, and var. *capucina*, from Wimbleton; *Epunda lutulenta*, taken off ripe blackberries at Reading; *Dasycompa rubiginea* from Berkshire; and *Taniocampa populeti* from Wimbleton Common. Mr. Chittenden, *Lithosia sericea*; var. *confluens* of *Anthrocera trifolii*; black *Nyssia hispidaria*; *Zonosoma pendularia*, blue from Lancashire, light from Kent; *Cymatophora duplaris*, black, bred from Kent; dark *Pachetra leucophæa*; dark *Hybernia marginaria*, Kent; &c. Mr. G. B. Brown, a specimen of *Euvanessa Antiopa*, taken by his little boy at Lee, together with a *Sphinx convolvuli* taken at Lydd, the former on August 24th, and the latter on September 11th. Major Ficklin, two very pale *Dianthæcia luteago*, var. *Ficklini*, and one with suffused marking; together with an example of *Brenthis Selene* with very dark under wings. Mr. Stanley Edwards, several species of the "Leaf" butterflies, *Kallima*, and a box of exotic *Papilios*. Dr. Chapman, *Pieris brassicae*, with black marginal line in hind-wing; *Argynnis Adippe*, var. *chlorodippe*, with black suffusion; and a dark variety of *Melitæa Athalia*, from Spain. Mr. Rowland-Brown, series of *Lycæna Dolus*, var. *vittata*, from Cannes, and *L. Admetus*, var. *Rippertii*, for comparison; a var. of *Melitæa Cinzia*, with the black spots on the under-side almost absent; and *Argynnis Lathonia*, with the left lower wing abnormally small. Mr. Sich, small dark var. of *Aglais urticae*; two varieties of *Xylophasia polyodon*, one having a dark median band, the other with confluent stigmata; a *Plusia gamma* having the Y mark reduced to a pale spot.

December 12th, 1901.—Mr. W. J. LUCAS, B.A., F.E.S., Vice-President, in the Chair.

Mr. Newnham, Hersham, Surrey, was elected a Member.

Mr. McArthur exhibited a ♂ specimen of *Lasiocampa quercus* taken at Brighton, and having the female coloration. Mr. Kirkaldy, a specimen of the Heteropteron, *Reduviolus fesus*?, having the wings on one side brachypterous, and on the other macropterous. Mr. F. M. B. Carr, bred series of *Selenia illunaria*, compared with the ♀ parents, and showing considerable variation; series of *Ennomos angularia* from several localities for comparison; *Dicycla oo* from Chingford; varied series of *Bryophila muralis* from Hythe; and series of *Acidalia marginipunctata* from Hythe and Porlock, the latter being much the darker. Dr. Chapman read a paper, entitled, "A few weeks in Central Spain," and exhibited long and varied series of the Spanish forms of British *Lepidoptera*, and of species very closely allied to British ones.—HY. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: December 6th, 1901.—The Rev. Canon W. W. FOWLER, M.A., F.L.S., President, in the Chair.

Mr. Frederick E. S. Adair, Flixton Hall, Bungay; Mr. William Anning, Box

Hill, Surrey, and 39, Lime Street, London, E.C.; Mr. Edward Connold, 7, Magdalen Terrace, St. Leonards-on-Sea; Mr. Frederick Muir, 86, Christchurch Street, Ipswich; Mr. R. Shelford, The Museum, Sarawak, Borneo; and Mr. John Waddington, 38, Leicester Grove, Blackman Lane, Leeds; were elected Fellows of the Society.

Mr. J. H. Carpenter exhibited a number of *Colias Hyale* bred from ova laid by the parent butterfly taken at Sheerness, August 18th, 1900. Mr. J. W. Tutt said that twelve months ago there was no reliable evidence as to the stage in which *Hyale* passed the winter, but that Mr. Carpenter had proved that it hibernates in the larval state, and pupates and emerges in the spring. No one has yet successfully bred *C. Edusa* through the winter, as they do not and cannot feed up these in this country. *Hyale*, on the other hand, is perfectly quiescent during the winter months (October 20th to February 3rd, according to Mr. Carpenter's observations). Mr. R. S. Standen, specimens of *Lycæna dolus*, the type from Bordighera, and also *Pieris brassicae* with greenish under-wings, a common form in the neighbourhood of Florence. Mr. C. P. Pickett, pupa-cases of *Saturnia pavonia*, one with two openings, one with no opening, and a third containing three pupæ, from one only of which the imago had emerged. Mr. J. W. Tutt said that this phenomenon was probably due to overcrowding. The Rev. A. E. Eaton, some adult *Psychodida* of morphological interest, preserved in cork tubes with 2% Formic Aldehyde in distilled water. (1) *Pericoma notabilis*, Etn., as a sample of male flies retaining prothoracic air-nipples, such as Curtis figured (Brit. Ent., xvi, 745 [1839]), and are possessed by pupæ of both sexes, illustrated both by Miall and Walker and by Fritz Müller in the volume of the Transactions of this Society for 1895; also by Kellog, Ent. News, xii, 48, figs. A, B (February, 1901). *Pericoma soleata*, Hal. MS., has similar small claviform air-nipples on the prothorax; and so have some undescribed species more nearly related to *P. notabilis*, natives of middle Europe or of Algeria. (2) Male flies possessing erectile sacs, or else protrusible tentacles arising one on each side of the mesothorax near the spiracle, and receiving a strong branch from the main trachea of each side. In the state of contraction these sacs or tentacles resemble a tuft of hair, which is very dense in some flies: by their distension, the tufts are either spread open, or the tuft is resolved into scattered hairs distributed over at least the whole of the upper surface of the tentacle. These organs are probably subservient to sexual attraction, and, perhaps, secrete scent. A few males possess them, in addition to the pair of prothoracic air-nipples, for instance, *P. fusca* and the species figured by Curtis, *P. auriculata* (both exhibited); but more species are possessors of the mesopleural pair of appendages alone. The two species last named differ in the shape of their thoracic appendages now under consideration: the male *P. fusca* has short, chitinous, slightly curved, prothoracic air-nipples, and short nipple-like mesopleural appendages that spread a dense epaulet-like tuft of hair; while *P. auriculata* has slender, club-shaped, whitish, prothoracic air-nipples, and mesopleural tentacles that are clad with silky hair, and are capable of great extension. But in the majority of species furnished with this kind of tracheate appendages issuing from the mesothorax, those of the prothorax are absent; and some have appendages of the sac form, others of the tentacular form. Among the exhibits, *Ulomyia fuliginosa*, *Pericoma nubila* and *trivialis* are exponents of the short, nipple-like, erectile, sac-shaped mesopleural type of appendage seen in *P.*

fusca; while *Pericoma palustris*, *mutua*, and the nameless species from the Schwarzwald, together with *P. cognata*, which was not exhibited, have the tentacular type of mesopleural appendage seen in *P. auriculata*. Mr. H. St. J. Donisthorpe read a paper, entitled, "The Life History of *Clythra 4-punctata*;" and Mr. G. W. Kirkaldy communicated "A Memoir upon the Rhynchotal Family *Capsidae*."—H. ROWLAND-BROWN, *Hon. Sec.*

ON THE SPECIFIC VALUE OF *BYBLIA GÖTZIUS*, HERBST.

BY GUY A. K. MARSHALL, F.Z.S.

Some years ago I recorded the statement of Mr. J. M. Hutchinson, of Estcourt, Natal, that he had bred a specimen of the wet season form of *Byblia ilithyia*, v. *acheloia*, Wallg., from an egg laid by typical *ilithyia*, Drury (A. and M. Nat. Hist. (6), xviii, p. 338, 1896), as a result of which I followed Mr. Trimen in regarding *B. Götzius*, Hbst., and its local race *acheloia*, as merely varieties of Drury's insect. This view was afterwards opposed by Dr. Dixey in his interesting review of the genus (Proc. Zool. Soc., 1898, p. 376); and later also by Prof. Chr. Aurivillius (Rhop. Aeth., pp. 158, 159).

During the past season I determined to obtain further evidence on the point by breeding these insects from the egg; Salisbury being a specially suitable locality for such an experiment, owing to the fact that both forms occur here in about equal numbers, which I do not remember to have observed in any other part of South Africa. My attempts to induce the ♀s to lay in captivity were futile, but with the expenditure of a considerable amount of time, I succeeded in obtaining from twelve to fifteen authenticated eggs of each form in the field. The food-plant and the general habits of the two insects appear to be identical, and they both possess the curious habit, which occurs among a good many of our butterflies, of laying most of their eggs indiscriminately at some little distance from the food plant: an instinct probably developed to evade the attacks of various egg-destroyers, which would principally frequent the food-plants of their victims. From these eggs I obtained fourteen butterflies in all, and in every case these bred true to their respective parents. This evidence would not be very cogent in itself, were it not supported by certain differences exhibited by the two forms in their larval and pupal instars.

In the case of the larvæ it seemed at first as though there might be a reliable distinction in the structure of the spines, but with the examination of further material it became evident that there was a certain amount of individual variation in this direction which rendered the character useless.

Finally it proved that the only trustworthy distinction was a small, but stable, difference in colour; for whereas in *ilithyia* the broad central yellow stripe is divided by a narrow longitudinal black line; in *acheloia* there is no such division, the stripe being unicolorous throughout. This character is based on the breeding results obtained from about thirty specimens, which will probably be sufficient to establish its validity. It applies, however, only to the dark form of the larva, which predominates so much in this locality, that I have succeeded in finding only two examples of the green form. All those bred from the egg being dark. Unfortunately both of these green larvæ proved to be *acheloia*, so that I can only compare them with a description of the green form of *ilithyia*, which I made in Natal. The points of difference are as follows:—The Natal *ilithyia* is entirely dull green, with a narrow, duplicated, pale yellow, central line; each segment has on its anterior edge three black spots, one in the middle of the central line, and the others on each side of it. On the other hand, the Salisbury *acheloia* is dull green, with a broad central greenish-white stripe, containing a slightly darker, narrow, single, central line in one example, but uniform in the other; segments without any black spots. Owing, however, to the paucity of specimens, these distinctions cannot be regarded as reliable.

The differences which exist between the pupæ of the two insects, though comparatively slight, are of more importance owing to their being differences of structure, and not merely of coloration. In the first place the vertical cephalic projections are very slightly, but yet appreciably, more prominent in *acheloia*; and, further, in this insect the dorsal hump on the mesothorax is more distinctly carinate on its anterior declivity. But the most noticeable feature is the difference in the contour of the two pupæ as seen from above. The dorsal, or posterior, margin of the pupal wing after leaving the prominent shoulder bends strongly inwards as far as the first abdominal segment, and from there it curves outwards in a bold sweep, which attains its greatest width on the third segment. This outward curve is much more strongly marked in *acheloia* than in *ilithyia*, as the following measurements show:—

	<i>Ilithyia</i> .		<i>Acheloia</i> .
Length of pupa.....	18.5 mm.	.....	18.5 mm.
Width at shoulders	6.0 "	.....	6.0 "
" at 1st abdominal segment ...	4.5 "	.....	4.5 "
" at 3rd " " " ...	5.5 "	.....	6.0 "

There seems to be no difference in colour between the two pupæ beyond a considerable range of individual variation. In the long series of *ilithyia* bred by Mr. Hutchinson in Natal the green type of pupa vastly predominated, there being only about 5 per cent. of the brown form. My own experience was just the reverse, the green form being entirely absent, though the surroundings were often such as would tend to produce that colour in a fully sensitive pupa.

Observation of the conditions under which the larvæ of *Byblia* exist in this locality tend to throw some light on the probable cause of their marked dimorphism. In the short herbage of the open veldt round Estcourt the nettle upon which these insects feed stools out into a low clump-like growth, amidst which the green larva is well concealed, but the dark form is decidedly conspicuous. To any one who has only observed the latter under these circumstances the explanation of its distinctive colouring must present a decided difficulty. But widely distributed species such as these must encounter varying conditions throughout their range, and to these they must be able to adapt themselves. Such is doubtless the case in the present instance. For in the rank growth of this country this particular nettle assumes a somewhat creeping habit with more widely distant leaves, and is especially fond of twining itself among the close woody stems of several small shrubs. When a dark *Byblia* larva is seen upon the plant under these conditions the protective value of its dark and light stripes at once becomes obvious, and this probably accounts for the much greater prevalence here of the dark form in both the larva and the pupa. It would be of much interest to ascertain the larval colours assumed by these two species in various parts of their extended range, and especially in relation to the habits of their food plant. The differentiation of the larvæ into two forms is probably of considerable antiquity, as may be judged partly from the marked character of the dimorphism, all tendency to intermediate variation having been eliminated; but principally from the fact that the two types may be readily distinguished from the first moult. The larva of *acheloia* cannot be distinguished for certain from that of *ilithyia* until its fourth stage. And since in its third stage it exhibits distinct traces of the dark central line characteristic of the latter insect, this fact, in conjunction with its smaller range, points to the conclusion that it is a later development from the typical species. It is probable that India was the original home of the genus, and it possibly took part in that great influx of animal life from Asia into Africa, which, according to the suggestion originally made by Huxley, took place in later Miocene times. The new conditions under which it then found itself would thus lead to the preservation of suitable varieties, resulting in the establishment of *B. Götzius* and its various local forms. Following out this supposition the Madagascar subspecies *B. Götzius-avvatarata* would have arisen subsequent to the isolation of that island, owing its origin to the occasional immigration of examples of *Götzius* from the mainland. And this view is supported

by the fact that along the East African littoral *Götzius* is the dominant species almost to the exclusion of *ilithyia*, which prefers the cooler uplands and plateaux of the interior.

In comparing the wet season forms of these two species the most striking difference which presents itself is the absence in *acheloia* of the broad white bands on the under-side of the hind-wings. There is, I believe, an important significance in this deviation from the colouring of the typical species; for *acheloia*, when at rest, presents thereby a notable resemblance to the wide-spread and distasteful *Acraea Terpsichore* L. (*A. serena*, auctt.), and its various subspecies. This fact will probably throw some light on the peculiar distribution of the two species of *Byblia*. For certainly, so far as South Africa is concerned, the ranges of *acheloia* and *A. Terpsichore-Rougeti*, Boisd. (*A. Buxtoni*, Butl.), are practically coincident; whereas in the strongholds of *ilithyia* this *Acraea* is of rare occurrence, or, more frequently, entirely absent. In the warmer and more luxuriant lowlands the development of bird and butterfly life is at its maximum, and the struggle for existence is consequently keenest. And it is precisely in such localities that *acheloia* has ousted *ilithyia*, which we can readily understand as soon as we realise the higher protective value of its incipient mimetic colouring. The persistence of the broad white stripes on the under-side (in conjunction with the uniform dark background) in the dry season forms of both species is doubtless due to their procryptic value upon the same principle as the tiger's stripes.

The following is a detailed description of the larva of *B. Götzius-acheloia*:

Full-grown larva:—Length, exclusive of cephalic horns, 25 to 30 mm.; head black, except a broad band of dull green extending from the back of horns to the anterior margin of 2nd segment. The lateral portions of lobes are fairly closely set with short stout white spines of varying lengths, and there are also a few on the vertex; these spines are sparsely scattered with very short white hairs. The vertex of each lobe is gradually produced into a very long cephalic horn, measuring about 4.5 mm. This horn is only very slightly narrowed to apex, where it is distinctly clubbed, the club bearing a vertical spine surrounded by a whorl of five short thick spines, with usually either one or two additional thinner ones. The main stem of the horn bears nine or ten irregularly placed short spines, much thinner than those on the club, and is also studded with minute setigerous tubercles. The colour of the horn is dark-greenish black and the stem spines black, usually with white bases. The horns are placed much more vertically than in *Precis*, and are thus more nearly in a line with the front of the face; when at rest the head is bent in sharply so that they project straight out in front. Body cylindrical, set with series of stout branched spines. The spines have a short thick base (1 mm. in the largest), on the

summit of which is a thin vertical spike, distinctly longer than the basal part, surrounded by a whorl of similar but shorter spikes of varying number. In the two dorsal rows, which are the largest, the whorl contains four spikes, except on 3rd and 4th segments, in which it has five and sometimes six, and on 11th and 12th, where it has five, but sometimes only four. The subdorsal and lateral rows of spines have only three spikes in the whorl, except on segments 3, 4, 5 and 6, where there are four and rarely five. In the sublateral row the base of the spine is reduced to a mere tubercle, and the whorl contains either three or four spikes. The colour of the body spines is black with a dark blue metallic reflection, but the summit of the dorsal spines from which the whorl springs is greenish-white, and the whorl spikes in the lateral and sublateral rows are white. Second segment with a group of three short simple black spines on either side of central line, and below them a white whorled lateral spine, and a similar sublateral one just above the leg. Third and fourth segments with a dorsal, lateral and sublateral whorled spine on either side. Abdominal segments similar, but with an additional subdorsal spine. The 11th and 12th segments differ, however, from all the rest in having an additional spine on the median line; these spines have a whorl of five spikes, but differ from the others in having no central spike. The segmental incisions are not very deep, and the abdominal segments are broken into four rings; the anterior one comprises rather more than half the segment and carries the spines; the remaining three are narrow and subequal. General colour velvety black or very dark brown, with a broad pale yellow, or dirty white, central stripe between the dorsal spines. A lateral ochreous-red or yellow stripe, lying between and including the subdorsal and lateral spines, well defined on thoracic, very ill-defined and broken up on abdominal, segments; being encroached upon by two diagonal blackish lines, starting from the same point at apex of segment and sloping downwards and forwards; the upper longer one passes between the spines and through the spiracle, the lower runs only to the base of the sublateral spine. The entire upper surface of the larva is sparsely scattered with minute white shagreen dots, often irregularly arranged in transverse rows.

First stage.—Length, at termination, about 4 mm. Head dark brown, with about a dozen scattered black hairs, the lower ones short, those on vertex moderately long; no cephalic horn. Colour of body greenish-white, with three large irregular lateral patches of dark brown; the anterior one extending from behind middle of 3rd to middle of 5th segment; the middle one on 7th and slightly encroaching on 8th; the posterior one on 10th and 11th segments. Body glabrous. The segments have the following arrangement of tubercles from either side of central line downwards. Second segment: a large composite dorsal tubercle bearing four setæ, a single subdorsal tubercle bearing one seta, two lateral tubercles placed longitudinally, the anterior bearing two setæ, the posterior none; lastly, a tubercle above leg with two setæ. Third and fourth segments: a regular transverse row of five tubercles, the dorsal, subdorsal, and that above leg with a single seta each, remainder with two. Abdominal segments with six tubercles on either side, bearing one seta each; 1st and 3rd placed near anterior edge, 2nd much further back, 4th and 5th placed longitudinally close together in the segments with claspers, but transversely in the others.

Second stage.—Greatest length, 6 mm. Head entirely black, shiny, with scat-

tered small black tubercles bearing long black setæ (no sign of white tubercles); vertex of each lobe produced into a short, thick, cephalic horn, about two-thirds as long as the face, of a transparent testaceous-yellow colour, and irregularly set with comparatively large setigerous tubercles. Second segment has on either side of central line a collection of four small pale conical tubercles, each bearing a long seta, and around their bases are six or seven short setæ; a much larger, white, conical, subdorsal tubercle, with one apical and three lateral black setæ; two minute uni-setigerous tubercles placed below and in front of spiracle; above leg a conical tubercle, with an apical and three lateral setæ. On the third and fourth segments the dorsal tubercles are very stout, and their apices are produced into a short central projection, bearing a long black seta, surrounded by a whorl of five or six similar projections; the subdorsal tubercle is similar but smaller, and below it is one above the leg like that on second segment. The abdominal segments have similar dorsal, subdorsal, lateral tubercles, the irregularly placed second tubercle of the first stage having disappeared; and the eleventh and twelfth have the additional central tubercle as in the mature larva. The colouring is very similar to that of the first stage, being greenish- or yellowish-white, with the small, ill-defined, lateral patches, but these are now joined by a narrow broken brown line running just above the subdorsal tubercles. The white shagreen tubercles are absent, but short black setæ are very sparsely distributed over the surface, more particularly round the bases of the tubercles. The dorsal tubercles on segments 4, 7, and 11 are brownish, the remainder whitish.

Third stage.—The structure of the body spines and cephalic horns is practically identical with that in the mature larva, the latter being much longer than in the second stage, viz., one and half times the length of the face. The head is still entirely black, but a few white tubercles make their appearance, and the cephalic horns are entirely black. The ground colour of the body is of a much more pronounced greenish or yellowish tinge, thus showing up the paler central stripe, which is divided by a narrow, slightly darker, line. The dark lateral patches of the earlier stages are here scarcely distinguishable, the pigment apparently having concentrated in the dorsal and subdorsal spine stems, which are almost black on all the segments, except 6, 9, 10, and 13, on which they are whitish, but with the greater part of their apical spikes black.

The remaining are so similar to the full-grown larva as to need no detailed description.

Salisbury, Mashonaland:
October, 1901.

HYMENOPTERA COLLECTED BY COL. YERBURY IN S.-W. IRELAND IN 1901.

ACULEATA BY EDWARD SAUNDERS, F.L.S.; *CHRYSIDIDÆ* AND *TENTHREDINIDÆ*,
BY REV. F. D. MORICE, M.A., F.E.S.; *ICHNEUMONIDÆ* (INCLUDING A SPECIES
NEW TO OUR FAUNA) BY CLAUDE MORLEY, F.E.S.

ACULEATA.

Colonel Yerbury, during his recent visit to Ireland, was good enough to collect *Hymenoptera* on my behalf, and amongst the *Acu-*

leates of the collection are many species of considerable interest, although there is none actually new to our lists. All, however, are interesting, on account of the localities, and some on account of their very unusual coloration. Amongst the latter may be mentioned specimens of *Crabro dimidiatus* which have almost entirely lost their yellow markings; a small black ♂ of *C. 4-maculatus* belonging to the var. *geniculatus* which, except for the sharp teeth under the cheeks, would have passed as a curious species of the subgenus *Cælocrabro*, for which I took it at first and tried hard to make a new species of it, but at last discovered what it really was. The melanic variety of *Megachile Willughbiella* mentioned in the following list is most striking, and all the examples taken were similarly coloured; the collection also contains a very dark *Bombus Smithianus* ♂ of quite different coloration to any I have seen before. Perhaps the rarest species taken was *Colletes montanus*, which hitherto has only been recorded from Irvine, in Scotland.

Formica fusca, Linn., Parknasilla, nest, 3.8.01; Valentia I., nest with winged sexes, 2.8.01.

Lasius niger, Linn., Waterville, nest with winged sexes, 2.8.01, Parknasilla, nest under stones with winged sexes, 2.7.01, Kenmare, nest under stones with winged sexes, 5.7.01; *flavus*, De G., Waterville, nest with winged sexes, 3.8.01, Parknasilla, nest under stones with winged sexes, 13.7.01.

Myrmica rubra (race *ruginodis*), Linn., Waterville, nest under stones with winged sexes, 3.8.01, Parknasilla, nest under stones with winged sexes, 13.7.01.

Pompilus plumbeus, Fab., ♂ ♀, Waterville, 27.7—2.8.01, Dooks, 25.8.01; *niger*, Fab., ♂ ♀, Kenmare, Cloonee, Loo Bridge, Parknasilla, Glengariff, 14.6—24.7.01, 3rd submarginal cell petiolated in all the males and in 5 out of the 9 females; *ungicularis*, Thoms., 1 ♀, Waterville, 30.7.01; *gibbus*, Fab., 1 ♀, Waterville, 27.7.01.

Salix exaltatus, Fab., 3 ♂, 11 ♀, Parknasilla, Glengariff, Waterville, Valentia, Kenmare, 15.6—10.8.01.

Ceropales maculata, Fab., ♂ ♀, Waterville, Caragh Lake, Glenbeigh, 5.7—17.8.01.

Passalæcus monilicornis, Dhlb., 1 ♀, (var. black labrum), Caragh Lake, 20.8.01.

Gorytes mystaceus, Linn., 1 ♂, 13 ♀, Kenmare and Glengariff, 15.6—10.7.01.

Nysson spinosus, Fab., 2 ♂, 5 ♀, Kenmare and Glengariff, 23.6—10.7.01.

Mellinus arvensis, Linn., ♂ ♀, Waterville, Caragh Lake, Kenmare, Loo Bridge, Dooks, Valentia, Darrynane.

Oxybelus uniglutinis, Linn., ♂ ♀, Waterville, Dooks, Darrynane, 27.7—15.8.01.

Crabro clavipes, Linn., 1 ♀, Kenmare, 30.6.01; *leucostomus*, Linn., 1 ♂, 2 ♀, Kenmare, Caragh Lake, Parknasilla, 27.6—20.8.01; *cetratus*, Shuck., 2 ♀, Kenmare, 27.6.01, Parknasilla, 15.7.01; *palmipes*, Linn., 3 ♂, 2 ♀, Loo Bridge, Cloonee, Kenmare, 3—6.7.01; *varius*, Lep., 4 ♂, Kenmare, Loo Bridge, Cloonee, 27.6—3.7.01; *4-maculatus*, Fab., 3 ♂, Glengariff, Caragh Lake, 26.6.01, 14—20.8.01;

4-maculatus (var. *geniculatus*), Shuck., 1 very small black ♂, Parknasilla, 28.7.01; *dimidiatus*, Fab., 6 ♀, very dark, Glengariff, Kenmare, Parknasilla; the abdomen in the Parknasilla specimen scarcely shows any indication of spots, those on the 3rd segment even being reduced to a minimum; *cephalotes*, Pz., 3 ♀, Parknasilla, Caragh Lake, 14.7.01—14.8.01; *chrysostomus*, Lep., 6 ♂, 7 ♀, Parknasilla, Loo Bridge, Kenmare, Caragh Lake, Glengariff, Glenmore, 16.6—14.7.01; *vagus*, Linn., 1 ♀, Caragh Lake, 20.8.01.

Vespa rufa, Linn., 1 ♂, Parknasilla, 21.7.01, 1 ♀, Kenmare, 10.7.01; *austriaca*, Pz., 1 ♀, Parknasilla, 15.7.01.

Odynerus trifasciatus, Oliv., 5 ♂, 5 ♀, Parknasilla, Cloonee, Glengariff, Kenmare, 19.6—24.7.01; *trimarginatus*, Zett., 3 ♂, 6 ♀, Parknasilla, Loo Bridge, Glengariff, Kenmare, Caragh Lake, Valentia, Ardgowan, 18.6—20.8.01; *parietinus*, Linn., 2 ♂, 1 ♀, Kenmare and Glengariff, 19.6—7.7.01; *sinuatus*, Fab., 1 ♂, 2 ♀, Kenmare, Loo Bridge, Glengariff, 24.6—6.7.01.

Colletes succinctus, Linn., 11 ♂, 1 ♀, Valentia, Dooks, Glenbeigh, Waterville, Caragh Lake, Loo Bridge, 27.7—20.8.01; *montanus*, Mor., 9 ♂, 6 ♀, Waterville, 27.7—2.8.01.

Proscopia confusa, Nyl., 7 ♂, Glengariff, Kenmare, 14.6—7.7.01.

Sphecodes subquadratus, Sm., 1 ♂, 1 ♀, Caragh Lake, Kenmare, 20.8 and 20.6.01; *affinis*, v. Hag., 3 ♀, Kenmare, 5.7—23.8.01.

Halictus rubicundus, Chr., 9 ♂, 23 ♀, Glengariff, Kenmare, Parknasilla, Cloonee, Waterville, Loo Bridge, Caragh Lake, 15.6—1.9.01; "*Bombylius* hovering over holes," Kenmare, 10.7.01; *cylindricus*, Fab., 1 ♂, Caragh Lake, 14.8.01; *albipes*, Kirb., 1 ♂, 12 ♀, Glengariff, Loo Bridge, Kenmare, Caragh Lake, Cloonee, Waterville, 10.6—14.8.01; *villosulus*, Kirb., Glengariff, Kenmare, 13—27.6.01; *punctatissimus*, Schk., 1 ♂, 2 ♂, Glengariff, Kenmare, 15.6—26.8.01; *nitidiusculus*, Kirb., 2 ♂, 5 ♀, Kenmare, Valentia, 27.6—10.8.01; "*Bombylius* hovering over holes, apparently throwing off eggs with a jerk," Kenmare, 27.6.01; *tumulorum*, Linn., 1 ♀, Kenmare, 27.6.01; *leucopus*, Kirb., 1 ♀, Kenmare, 30.6.01.

Andrena albicans, Kirb., 1 ♀, Glengariff, 19.6.01; *fucata*, Smith, 4 ♂, 6 ♀, Glengariff, Kenmare, Loo Bridge, Parknasilla, 16.6—15.7.01; *Gwynana*, Kirb., 1 ♂, 3 ♀, Parknasilla, Kenmare, 10.7—21.7.01; *fuscipes*, Kirb., 1 ♂, Kenmare, 23.8.01; *denticulata*, Kirb., 4 ♂, 4 ♀, Waterville, Parknasilla, Darrynane, 12.7—1.8.01; *analis*, Panz., 1 ♂, 1 ♀, Loo Bridge, Caragh Lake, 8.7—30.7.01; *coitana*, Kirb., 5 ♂, 14 ♀, Waterville, Kenmare, Parknasilla, Glengariff, Staigue, Glencar; *Cetii*, Schr., 2 ♂, 2 ♀, Kenmare, Loo Bridge, 6.7—1.9.01; *humilis*, Imh., 9 ♂, 9 ♀, Kenmare, Glengariff, 12—27.6.01; *nana*, Kirb., 1 ♀, Kenmare, 27.6.01; *minutula*, Kirb., 4 ♀, Kenmare, Glengariff, Cloonee, 16.6—3.7.01.

Nomada alternata, Kirb., ♀, Glengariff, 16.6.01; *Roberjeotiana*, Pz., 2 ♀, Waterville, 27.7.01; *solidaginis*, Pz., 3 ♂, 3 ♀, Loo Bridge, Kenmare, Caragh Lake, 20.8—1.9.01; *rufticornis*, Linn., 2 ♂, 2 ♀, Kenmare, 28.6—23.8.01.

Calioxys elongata, Lep., 4 ♂, 2 ♀, Glengariff, Cloonee, Caragh Lake, Kenmare, Parknasilla, Staigue, 19.6—25.8.01; *acuminata*, Nyl., 2 ♀, Waterville, Kenmare, 4—27.7.01.

Magachile Willughbiella, Kirb., 7 ♂, 11 ♀, Parknasilla, Loo Bridge, Darrynane, Kenmare, Cloonee, Waterville, Glengariff, 16.6.01—31.7.01.

The ♀ specimens are most peculiar in coloration, and in this respect quite

unlike those we get in England. The hairs of the vertex of the head, of the disc of the thorax, and of the 3rd and following dorsal segments of the abdomen are black, whereas the hairs of the face and of the under parts of the thorax and of the base of the abdomen are white, or nearly so, giving the insect much the aspect of *M. analis*, Nyl., a species which has not yet been recorded from Britain, and which at first I hoped they would prove to be, but they lack the gibbous scutellum and white hairs on the 6th dorsal segment so characteristic of that species. The males only differ from English specimens in the whiter hairs of the under-side.

Megachile centuncularis, 2 ♂, Glengariff, Kenmare, 23—29.6.01.

Psithyrus Barbutellus, Kirb., 2 ♂, 1 ♀, Kenmare, Valentia, 10 and 23.8.01, 1 ♂ very small, ♀ very dark; *campestris*, Pz., 2 ♂, 6 ♀, Kenmare, Glengariff, 18.6—1.9.01, 1 ♂ and 1 ♀ of the black variety.

Bombus hortorum, Linn., 2 ♀, Glengariff, 14—18.6.01; *Jonellus*, Kirb., 1 ♀, 1 ♂, Beoun Mountains, Parknasilla, 21—22.7.01; *lapidarius*, Linn., 1 ♂, 1 ♀, 1 ♂, Kenmare, Glengariff, Darrynane, 19.6—1.9.01; *Smithianus*, White, 2 ♂, 1 ♀, 1 ♂, Loo Bridge, Kenmare, Waterville, Staigue, Mt., 19.7—27.8.01; one male is most striking in its coloration, the thoracic hairs being of a dark chestnut-brown and the pubescence generally being of a brownish tinge; *agrorum*, Fab., 4 ♀, 5 ♂, Kenmare, Glengariff, Parknasilla, 12.6—10.8.01.

CHRYSIDIDÆ.

Chrysis ignita, L., Darrynane, Valentia, 31.7—3.8.01.

TENTHREDINIDÆ.

Abia sericea, L., 3 ♂, 3 ♀, Kenmare, Glencar, Parknasilla, Caragh Lake, 4.7—26.8.01; *candens*, Konow, 1 ♀, Darrynane, 31.7.01.

Trichiosoma Latreillei, Leach, 1 ♀, Parknasilla, 13.7.01.

Tenthredopsis Coqueberti, Kl., 1 ♀, Kenmare, 30.6.01.

Tenthredo atra, L., Glengariff, 16.8.01.

Allantus arcuatus, Forst., Waterville, 27.7.01.

ICHNEUMONIDÆ.

Cælichneumon derasus, Wesm., ♀, Loo Bridge, 29.6.01; *deliratorius*, Linn., ♂, Glengariff, 13.6.01; *sarcitorius*, Linn., Kenmare, ♀, 4.7.01.

Melanichneumon monostagon, Grav., ♂, Kenmare, 5.7.01.

Amblyteles armatorius, Forst., ♂, Glengariff, 19.6.01.

Pseudamblyteles palliatorius, Grav., ♂ ♂, Parknasilla, 24.7.01, Glengariff, 14.6.01.

Probolus concinnus, Wesm., ♂ ♀, Bul. Ac. Brux., 1853, p. 303; Berth. Ann. Soc. Fr., 1896, p. 306; ♀, Parknasilla, 14.7.01; Obs. *Ab P. alticola*, Grav., differt: corpore nitidiore, metathorace paulo brevior et minus scabro, abdominis segmento primo, sicut et sequentibus, nitido et vel ruguloso vel saepius confertim punctato, hujus postpetiolo paulo latiore. Scutellum interdum album purum. New to our Fauna.

Trogus lutorius, Fab., ♀, Caragh Lake, 20.8.01.

Platylabus dimidiatus, Grav., ♀, Caragh Lake, 14.8.01; *nigricollis*, Wesm., ♀, Kenmare, 2.7.01.

Colpognathus celerator, Grav., ♀, Kenmare, 7.7.01.

Spilocryptus ornatus, Grav., 2 ♀, "bred from *Zygana filipendula* ? Puparium

found Parknasilla 15th July; emerged 4th and 7th August." Obs.: the accompanying cocoons are bright flavous, and, I think, those of *Z. trifolii*, Esp.

Pleocryptus curvus, Schr., = *rustipes*, Grav., ♂, Parknasilla, 22.7.01; *arrogans*, Grav., ♂, Parknasilla, 22.7.01.

Liocryptus analis, Grav., 3 ♂ ♀, Kenmare, Glengarriff, 19—30.6.01.

Stylocryptus vagabundus, Grav., ♀, Kenmare, 22.8.01.

Goniocryptus titillator, Grav., ♀ Waterville, 27.7.01; ? var. *tarsis posticis fere totis nigris*, ♂, Glengarriff, 27.6.01; *clypearis*, Thoms., ♂, Waterville, 30.7.01.

Microcryptus? *sericans*, Grav., ♀, Parknasilla, 24.7.01.

Hemiteles? *solutus*, Thoms., ♂, Cloonee, 3.7.01; (♂ undescribed. Obs.: *Femoribus anticis subtus testaceis*).

Pezomachus analis, Först., ♀, Waterville, 27.7.01. I am indebted to Mr. Ernest A. Elliott for the determination of this species.

Schizoloma amicta, Fab., ♀, Valentia Island, 7.8.01.

Campoplex sp., ♀, Caragh Lake, 13.8.01; sp., ♂, Kenmare, 7.7.01.

Limneria crassicornis, Grav., ♀, Waterville, 26.7.01.

Tryphon elongator, Fab., ♀, Kenmare, 7.7.01; *braccatus*, Grav., Glengarriff 23.6.01; *trochanteratus*, Holmgr., Loo Bridge, 6.7.01; sp., Glengarriff, 20.6.01.

Pimpla sp., ♀, Kenmare, 30.6.01; *Braconida*.

Chelonus inanitus, Nees, ♂, Parknasilla, 18.7.01.

FOUR NEW SPECIES OF DIPTERA (FAM. BORBORIDÆ) FOUND IN BRITAIN.

BY J. E. COLLIN, F.E.S.

The four species here described have been well known to me for some time past as very remarkable and easily distinguishable members of the Dipterous family *Borboridæ*, and when Mr. Verrall was preparing his "List of British *Diptera*" for a second edition, I decided that they should be included in that "List," while to save them from becoming mere Catalogue names I now publish the following descriptions.

BORBORUS NOTABILIS, n. sp., ♂.

Large shining black species resembling *B. nitidus*. Hind tibiæ with a fine bristle beneath towards the front. Middle tibiæ with 5—6 spines on the upper side, but with only two on the under side, one towards the front and one towards behind. Middle femora and tibiæ with long silky pubescence underneath. Hind femora without the hooked process near the base, and anterior femora without the short stubby spines of *B. nitidus*.

Entirely shining black species, with only the joints of the legs at all pale, though the tarsi (especially the middle) are not so dark as the rest of the legs. *Chaetotaxy* of the head and thorax normal as in *B. nitidus*. Abdomen broader and the genitalia more globular than in *B. nitidus*.

Front femora very thick and strong, stouter than in *B. nitidus*, but without short stubby spines on their under-side as in that species; first joint of the front tarsi armed with a decided hook in front at the tip.

Middle femora not so constricted at the base, and without the short stubby



Fig. 1. *B. notabilis*, ♂. Right middle leg.

spines of *B. nitidus*, but with a row of bristles in front, which get longer and more distinct as they approach the tip; femora beneath and tibiae on the under-side clothed with long soft hairs, which are longer on the tibiae than on the femora. There are fewer spines on the middle tibiae than in *B. nitidus*, as there are only two on the under-side in addition to those at the apex, one almost in front at about two-thirds, and one towards behind a little nearer the tip; middle tarsi without the pubescence of *B. nitidus*, and the first joint only equal in length to the next two instead of the next three as in that species.

Hind femora without the hooked process of the male of *B. nitidus*, but with 4—5 fine bristles above and 2—3 below nearer the tip; hind tibiae with a short bristle in front towards beneath, a little more than half way down, the usual pre-apical seta, and two apical spurs, neither of which are twisted or flattened as in *B. nitidus*; first joint of the hind tarsi with a hook at the tip behind, and very little more than half the length of the next joint, which is but very slightly dilated.

Wings not so yellowish as in *B. nitidus*, though with the cross-veins obscured.

Length, 4½ mm.

I have only seen one male of this species which I found on some fungi in Bradley Park Wood (Suffolk) on November 6th, 1898, but it is so abundantly distinct that I have considered it safe to describe it as new. The female ought to be easily separated from that of *B. nitidus* by the number of spines on the middle, and the presence of the bristle in front of the hind tibiae.

I have compared this species only with *B. nitidus* in the above description, as it superficially resembles that species more than any other; *B. suillorum* and *B. Roseri*, besides being only half the size, have not the bristle in front of the hind tibiae, and have the legs more extensively pale; *B. niger*, of which I have not yet seen a British specimen, has the bristle on the hind tibiae, but differs in having only one pair of the outer dorsal row of bristles developed, and is a duller species with the legs abundantly clothed

with soft brown hairs; *B. punctipennis*, Mcq. (1835), may possibly be the female of my species, but anyhow his name cannot stand, as it had been used for another species by Wiedemann in 1824; *B. nervosus*, Mg., which Rondani included among those species with the middle tibiæ bristly down their whole length outside, cannot be my species, as Rondani says the hooked process of *nitidus* is present at the base of the male hind femora, while Meigen's original description will not apply at all to the species I have described.

SPHÆROCERA EXIMIA, n. sp., ♂ ♀.

Margin of scutellum denticulate. Discal (fourth longitudinal) vein curved upwards towards the radial at its end. Legs simple; front tibiæ bearing above at the tip a small spine lying nearly flat.

Head of *S. pusilla* type; the cheeks and the space between the antennæ often of a reddish colour.

Thorax and scutellum with a quantity of flat white points, each placed upon a minute black wart; there are no bare lines on the thorax, and the ground colour is more *shining* black than in *S. pusilla*, because it is not finely punctate. Scutellum with 14–16 stout teeth (which are occasionally reddish-brown), each tooth consisting of a stout elongated wart with a flat white point at its tip.

Abdomen ovate with almost equal segments, punctate and shining black, with duller incisures and often whitish side margins. Venter with pale yellowish-white membranous side margins; the shining black ventral plates bear a scattered pale pubescence, and their hind margins are pale; in the male the hind margin of the fourth plate has a square piece cut out to accommodate the genitalia.

Legs black, with the coxæ, trochanters (more or less), and the knees pale (when immature the legs may be entirely reddish-brown), all clothed with a

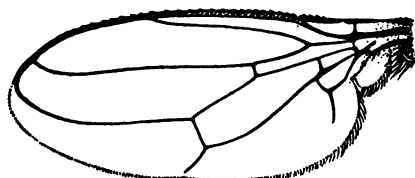


Fig. 2. *S. eximia*, ♂, wing.

quantity of the flat white points; front tibiæ above at the tip with a short spine lying nearly flat, and hind tibiæ underneath with two short apical spurs, the one towards in front being the shorter; basal joint of the hind feet not much dilated, and hardly equal in length to the next two joints.

Wings (fig. 2) clear, with pale yellowish nervures. Halteres pale.

Length, 2 mm.

I have seen three males and two females of this species, taken at Chippenham Fen near here, 31.1.98, 26.12.93, and 27.5.95, and in the paddock behind Mr. Verrall's house at Newmarket, 15.5.97 and 15.5.01.

This species may possibly be only Meigen's *Borborus hyalipennis*, as he described it as having "die vierte Längsader stark vorwärts

gebogen;" but his description is far too vague, as he does not even state if the scutellum is denticulate. Rondani's *Sph. curvina* must also be very closely allied, or it may even have been a dwarfed and immature specimen of *S. eximia*. Neither of these species has been recognised since the descriptions were published, and as I considered it necessary to have this very distinct species in the British List for the benefit of future collectors, I describe it as new, and point out the possible synonymy.

LIMOSINA HALIDAYI, n. sp., ♂ ♀.

Like *L. lutosa*, but of a lighter colour; the face, pleuræ and legs being of a light soft, almost silvery, grey. *Male* with the first three joints of the hind tarsi gradually *decreasing* in length and size, the third joint being very small, fourth slender and nearly as long as the first three together, and the fifth about half the length of the fourth. Genitalia very distinct from that of *L. lutosa*. *Female* with the hind tarsi simple, and with only soft hairs on the hind trochanters.

Head of the same shape as that of *L. lutosa*; face, cheeks and jowls light grey, the face with a yellowish tinge.

Thorax light greyish-brown, with bristles as in *L. lutosa*; acrostichal bristles very inconspicuous; scutellum eight bristled. Abdomen with a decided glaucous tinge, bristly at the sides and round the remarkable genitalia of the male.

Legs with the posterior coxæ and trochanters (more or less), the knees and the tarsi (particularly the whole of the middle and the basal joint of the front tarsi), pale; bristles as in *L. lutosa*; the relative lengths of the joints of the hind tarsi in the male are, however, very different (fig. 3), and there are also more of the stubby bristles (and these are longer behind) on the hind trochanters of the male.

Wings (fig. 4) as in *L. lutosa*. Halteres pale yellow.



Fig. 3. *L. Halidayi*.
♂. Left hind leg.

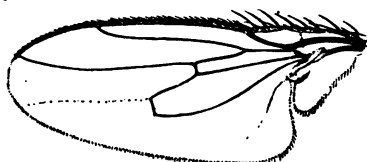


Fig. 4. *L. Halidayi*. ♂. Wing.

This species is very distinct in the male by its remarkable hind tarsi; it is difficult to separate the female from that of *L. lutosa*, but the lighter colour and the absence of any stubby bristles on the hind trochanters in my species suffice to identify it.

Length, $2\frac{1}{2}$ — $2\frac{3}{4}$ mm.

This is a mud loving species, of which I have taken about twenty

specimens at Kirtling near here, and in the ditch in Mr. Verrall's paddock at Newmarket in the months of August and September. I have named this species after the late A. H. Haliday, as a tribute to the memory of one who did a large amount of most useful work in the family.

L. Halidayi belongs to a group in the genus which includes *L. fontinalis*, *roralis*, *fuscipennis*, *lutosa*, *limosa*, and *geniculata*, all of which have more than four bristles on the scutellum, even if two are only very small, and a peculiar long bristle on the middle trochanters in front, pointing in the direction of the femur; moreover, the last four species also have the front pair of the dorsal row of bristles and one humeral bristle strongly incurved; *zosteræ*, Hal., also possesses this last character, the first two pairs of the dorsal bristles being incurved, but it has only four scutellar bristles. *L. Halidayi* is most allied to *L. lutosa*, with which I have compared it.

LIMOSINA MIRABILIS, n. sp., ♂ ♀.

A small dull brownish-black species, with a remarkable spine on the under-side of the hind tibiæ in both sexes.

Eyes small; antennæ pointing out sideways, arista pubescent; inter-antennal keel fairly prominent; frons often slightly reddish in front.

Thorax dull, clothed with brownish pubescence. Scutellum with four bristles.

Abdomen slightly more shining than the thorax, with the second segment the longest; in the male there is a small tuft of hairs at each corner of the fifth segment at the tip, on the under-side of the abdomen; while at the end of the female abdomen there are two yellow palpi-like processes, each of which has a small black bristle at the tip above.

Legs varying in colour from yellowish-brown to brown, but never black, and always with the tarsi paler; the hind tibiæ bear

Fig. 5. *L. mirabilis*.

♂. Left hind leg, a most extraordinary long curved spine beneath, starting at a little more than half way down, and extending beyond the tip of the tibiæ (fig. 5): second joint of the hind tarsi slightly dilated, and very little longer than the first joint.

Wings (fig. 6) not clouded, with the nervures pale. Halteres with a pale stem but a darkened knob.

Length, 1—1½ mm.

This species was taken by Mr. Verrall on his stable window here.

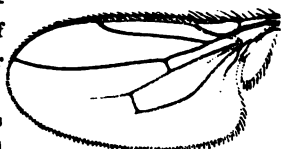


Fig. 6. *L. mirabilis*. ♂. Wing.

in April, 1896, and he noticed the extraordinary spine on the hind tibiæ, and placed the species in his collection under the MS. name *mirabilis*. I have also taken it here, and at Kirtling, in April, May, June and July, but it seems to be commonest in April.

I know of no described species with the above characters, and it seems hardly possible that any student of this group could have overlooked the peculiar spine on the hind tibiæ.

Sussex Lodge, Newmarket :
January, 1902.

AN AUSTRALIAN SPECIES OF *MICROPTERYGIDÆ*.

BY E. MEYRICK, B.A., F.Z.S.

No species of the Family *Micropterygidæ*, so interesting from its highly primitive character, has hitherto been recorded from Australia, nor have I ever previously obtained one, though I now possess over 2000 species of *Tineina* from that region. On the other hand from New Zealand, with 230 *Tineina*, I know of nine species of *Micropterygidæ*; and as these latter are, from their invisibility in flight, especially likely to be overlooked, no doubt more remain to be discovered. The present species is nearly allied to a New Zealand one; and as there is a sufficiency of biological evidence to indicate a former land connection between Queensland and the northern extremity of New Zealand by way of New Caledonia, it seems reasonable to conclude that the close relationship of *Palæomicra calliplaca* from Queensland and *P. zonodoxa* from the north of New Zealand points in the same direction, and (from the figures quoted above) that their place of origin is properly New Zealand.

PALÆOMICRA CALLIPLACA, n. sp.

♂ ♀. 7—8 mm. Neuration as in *P. zonodoxa*, but vein seven of fore-wings to apex. Head ferruginous. Palpi pale ochreous. Antennæ dark grey, with basal pale ferruginous band. Thorax whitish-yellow. Abdomen dark grey. Anterior and middle legs whitish-ochreous, apex of joints black; posterior legs dark grey, apex of joints whitish-ochreous. Fore-wings suboblong, costa bent near base, thence gently arched, apex acute, termen extremely obliquely rounded; bright deep purple; an elongate pale brassy-yellow median basal spot, extending to one-fifth; a rather narrow, straight, pale brassy-yellow fascia before middle; apical third strewn with pale brassy-yellow scales, sometimes forming a defined costal dot at two-thirds; cilia dark grey, round apex ochreous-white except at base. Hind-wings rather dark grey, lighter anteriorly, sometimes purplish-tinged; cilia grey.

Eight specimens received from Dr. A. J. Turner, who took the

species in plenty on Mount Tambourine, 20 miles south of Brisbane, Queensland, in November and December. The hill is covered with luxuriant tropical forest, and amongst this he found *P. calliplaca* in great numbers resting on the flowers of a small shrub (*Claoxylon australe*, one of the *Euphorbiaceæ*); it seemed strictly confined to this plant, but considering the known habits of the group, the moths were probably feeding on the flowers, and the food-plant of the larvæ would be something quite different.

Elmswood, Marlborough:
January, 1902.

DESCRIPTIONS OF ORIENTAL *LIMNICHINI* (COLEOPTERA,
FAM. BYRRHIDÆ).

BY D. SHARP, M.A., M.B., F.R.S.

When studying the Central American *Limnichini* for the Biologia Centrali Americana, I found that I must establish several new genera, and I was very much surprised, on comparing the Oriental forms in my collection with those from the New World, to find that there was an extreme similarity. Nevertheless, on investigating the structural characters it seems that most of the Oriental forms will be placed in genera different from those of the New World, and I here establish two new genera for the eastern forms. One of the eastern species I cannot, however, distinguish from *Cyphonichus*, a Central American genus.

Although the *Limnichini* are amongst the most neglected of the *Coleoptera*, they prove to be of considerable interest. The arrangements of minor structural points so as to facilitate the perfect packing together of the limbs when "feigning death" are really remarkable. Extremely few exotics forms have yet been described, though it is now evident that the subfamily is rather richly represented in tropical regions. The Munich Catalogue of *Coleoptera* enumerates only two species as occurring outside Europe and North America. I have recently described some twenty or thirty Central American forms, and the descriptions I now make of some Oriental allies will prevent its being supposed that the subfamily is absent from the eastern tropics. The two exotic species listed in the Munich Catalogue are from Tasmania and the Cape Verde Islands. The genus *Ersachus*, placed by Erichson in *Limnichini*, and since quite lost sight of, must be removed to the family *Parnidae*.

gebogen;" but his description is far too vague, as he does not even state if the scutellum is denticulate. Rondani's *Sph. curvina* must also be very closely allied, or it may even have been a dwarfed and immature specimen of *S. eximia*. Neither of these species has been recognised since the descriptions were published, and as I considered it necessary to have this very distinct species in the British List for the benefit of future collectors, I describe it as new, and point out the possible synonymy.

LIMOSINA HALIDAYI, n. sp., ♂ ♀.

Like *L. lutosa*, but of a lighter colour; the face, pleuræ and legs being of a light soft, almost silvery, grey. *Male* with the first three joints of the hind tarsi gradually *decreasing* in length and size, the third joint being very small, fourth slender and nearly as long as the first three together, and the fifth about half the length of the fourth. Genitalia very distinct from that of *L. lutosa*. *Female* with the hind tarsi simple, and with only soft hairs on the hind trochanters.

Head of the same shape as that of *L. lutosa*; face, cheeks and jowls light grey, the face with a yellowish tinge.

Thorax light greyish-brown, with bristles as in *L. lutosa*; acrostichal bristles very inconspicuous; scutellum eight bristled. Abdomen with a decided glaucous tinge, bristly at the sides and round the remarkable genitalia of the male.

Legs with the posterior coxæ and trochanters (more or less), the knees and the tarsi (particularly the whole of the middle and the basal joint of the front tarsi), pale; bristles as in *L. lutosa*; the relative lengths of the joints of the hind tarsi in the male are, however, very different (fig. 3), and there are also more of the stubby bristles (and these are longer behind) on the hind trochanters of the male.

Wings (fig. 4) as in *L. lutosa*. Halteres pale yellow.

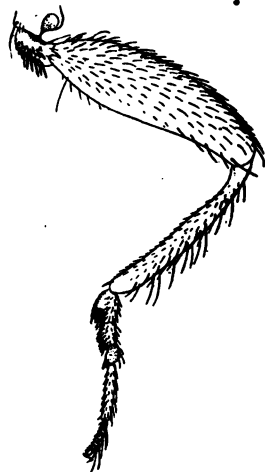


Fig. 3. *L. Halidayi*.
♂. Left hind leg.

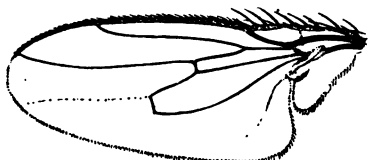


Fig. 4. *L. Halidayi*. ♂. Wing.

This species is very distinct in the male by its remarkable hind tarsi; it is difficult to separate the female from that of *L. lutosa*, but the lighter colour and the absence of any stubby bristles on the hind trochanters in my species suffice to identify it.

Length, $2\frac{1}{2}$ — $2\frac{3}{4}$ mm.

This is a mud loving species, of which I have taken about twenty

specimens at Kirtling near here, and in the ditch in Mr. Verrall's paddock at Newmarket in the months of August and September. I have named this species after the late A. H. Haliday, as a tribute to the memory of one who did a large amount of most useful work in the family.

L. Halidayi belongs to a group in the genus which includes *L. fontinalis*, *roralis*, *fuscipennis*, *lutosa*, *limosa*, and *geniculata*, all of which have more than four bristles on the scutellum, even if two are only very small, and a peculiar long bristle on the middle trochanters in front, pointing in the direction of the femur; moreover, the last four species also have the front pair of the dorsal row of bristles and one humeral bristle strongly incurved; *zosteræ*, Hal., also possesses this last character, the first two pairs of the dorsal bristles being incurved, but it has only four scutellar bristles. *L. Halidayi* is most allied to *L. lutosa*, with which I have compared it.

LIMOSINA MIRABILIS, n. sp., ♂ ♀.

A small dull brownish-black species, with a remarkable spine on the under-side of the hind tibiæ in both sexes.



Eyes small; antennæ pointing out sideways, arista pubescent; inter-antennal keel fairly prominent; frons often slightly reddish in front.

Thorax dull, clothed with brownish pubescence. Scutellum with four bristles.

Abdomen slightly more shining than the thorax, with the second segment the longest; in the male there is a small tuft of hairs at each corner of the fifth segment at the tip, on the under-side of the abdomen; while at the end of the female abdomen there are two yellow palpi-like processes, each of which has a small black bristle at the tip above.

Legs varying in colour from yellowish-brown to brown, but never black, and always with the tarsi paler; the hind tibiæ bear a most extraordinary long curved spine beneath, starting at a little more than half way down, and extending beyond the tip of the tibiæ (fig. 5): second joint of the hind tarsi slightly dilated, and very little longer than the first joint.

Wings (fig. 6) not clouded, with the nervures pale. Halteres with a pale stem but a darkened knob.

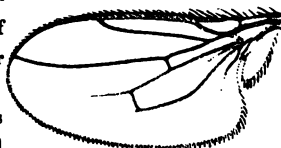


Fig. 6. *L. mirabilis*. ♂. Wing.

Length, 1—1½ mm.

This species was taken by Mr. Verrall on his stable window, here,

in April, 1896, and he noticed the extraordinary spine on the hind tibiæ, and placed the species in his collection under the MS. name *mirabilis*. I have also taken it here, and at Kirtling, in April, May, June and July, but it seems to be commonest in April.

I know of no described species with the above characters, and it seems hardly possible that any student of this group could have overlooked the peculiar spine on the hind tibiæ.

Sussex Lodge, Newmarket:
January, 1902.

AN AUSTRALIAN SPECIES OF *MICROPTERYGIDÆ*.

BY E. MEYBICK, B.A., F.Z.S.

No species of the Family *Micropterygidae*, so interesting from its highly primitive character, has hitherto been recorded from Australia, nor have I ever previously obtained one, though I now possess over 2000 species of *Tineina* from that region. On the other hand from New Zealand, with 230 *Tineina*, I know of nine species of *Micropterygidae*; and as these latter are, from their invisibility in flight, especially likely to be overlooked, no doubt more remain to be discovered. The present species is nearly allied to a New Zealand one; and as there is a sufficiency of biological evidence to indicate a former land connection between Queensland and the northern extremity of New Zealand by way of New Caledonia, it seems reasonable to conclude that the close relationship of *Palæomicra calliplaca* from Queensland and *P. zonodoxa* from the north of New Zealand points in the same direction, and (from the figures quoted above) that their place of origin is properly New Zealand.

PALÆOMICRA CALLIPLACA, n. sp.

♂ ♀. 7—8 mm. Neuration as in *P. zonodoxa*, but vein seven of fore-wings to apex. Head ferruginous. Palpi pale ochreous. Antennæ dark grey, with basal pale ferruginous band. Thorax whitish-yellow. Abdomen dark grey. Anterior and middle legs whitish-ochreous, apex of joints black; posterior legs dark grey, apex of joints whitish-ochreous. Fore-wings suboblong, costa bent near base, thence gently arched, apex acute, termen extremely obliquely rounded; bright deep purple; an elongate pale brassy-yellow median basal spot, extending to one-fifth; a rather narrow, straight, pale brassy-yellow fascia before middle; apical third strewn with pale brassy-yellow scales, sometimes forming a defined costal dot at two-thirds; cilia dark grey, round apex ochreous-white except at base. Hind-wings rather dark grey, lighter anteriorly, sometimes purplish-tinged; cilia grey.

Eight specimens received from Dr. A. J. Turner, who took the

species in plenty on Mount Tambourine, 20 miles south of Brisbane, Queensland, in November and December. The hill is covered with luxuriant tropical forest, and amongst this he found *P. calliplaca* in great numbers resting on the flowers of a small shrub (*Claoxylon australe*, one of the *Euphorbiaceæ*); it seemed strictly confined to this plant, but considering the known habits of the group, the moths were probably feeding on the flowers, and the food-plant of the larvæ would be something quite different.

Elmswood, Marlborough:

January, 1902.

DESCRIPTIONS OF ORIENTAL *LIMNICHINI* (COLEOPTERA,
FAM. BYRRHIDÆ).

BY D. SHARP, M.A., M.B., F.R.S.

When studying the Central American *Limnichini* for the Biologia Centrali Americana, I found that I must establish several new genera, and I was very much surprised, on comparing the Oriental forms in my collection with those from the New World, to find that there was an extreme similarity. Nevertheless, on investigating the structural characters it seems that most of the Oriental forms will be placed in genera different from those of the New World, and I here establish two new genera for the eastern forms. One of the eastern species I cannot, however, distinguish from *Cyphonichus*, a Central American genus.

Although the *Limnichini* are amongst the most neglected of the *Coleoptera*, they prove to be of considerable interest. The arrangements of minor structural points so as to facilitate the perfect packing together of the limbs when "feigning death" are really remarkable. Extremely few exotics forms have yet been described, though it is now evident that the subfamily is rather richly represented in tropical regions. The Munich Catalogue of *Coleoptera* enumerates only two species as occurring outside Europe and North America. I have recently described some twenty or thirty Central American forms, and the descriptions I now make of some Oriental allies will prevent its being supposed that the subfamily is absent from the eastern tropics. The two exotic species listed in the Munich Catalogue are from Tasmania and the Cape Verde Islands. The genus *Ersachus*, placed by Erichson in *Limnichini*, and since quite lost sight of, must be removed to the family *Parnidæ*.

MANDERSIA, n. g.

Antennæ ad basin rigide; articulis quatuor ultimis flagellum fragilissimum facientibus. Tibiæ intermediæ et posteriores subtus et intus longius et latius deplanatæ. Prosternum haud sulcatum.

Although the number of joints in the antennæ is somewhat uncertain, this genus is nevertheless readily distinguished by the structure of these organs, the basal joints forming a closely compacted mass, while the four terminal joints are so loosely connected that the slightest touch disconnects them. These terminal four joints are similar in size one to the other, each almost spherical but the last one with an acuminate tip; they are setose. Next to these four joints are three others closely connected, and in one aspect looking as though they were only one, the first of these three joints is short, not longer than broad, while the last of them is longer than broad; nearer to the base is a very long joint, which perhaps consists of two joints soldered together; the basal joint is very short and thick, and almost completely concealed by the epistome. Supposing the flagellum in my examples to be perfect, and the elongate joint to be really two-jointed, this makes the antennæ to be ten-jointed. They are not drawn into the thorax with the head when this is retracted. The application of the head to the prosternum is very perfect, and the deplanation of the tibiæ to permit of perfect adaptation to the femora, when retracted, is greater than in any other form. The eyes are laterally placed, and of the peculiar *Limnichus* form. The other characters that I can see are such as are characteristic of the group.

I have named this curious genus in honour of Surgeon-Major Neville Manders, who twelve or fifteen years ago discovered it in the Shan States, as well as a number of other interesting insects.

The genus may at present be placed near *Physemus* Lec., from which it differs totally in the loosely articulated flagellum of the antennæ.

MANDERSIA SCYMNOIDES, n. sp.

Ovulis, nigra, griseo-pubescent, antennis pedibusque rufis; subtiliter, minus dense punctata.

Long., 3 mm.

Thorax strongly transverse; the anterior angles much depressed, so as to clasp the retracted head; the anterior margin sinuate on each side so as to allow the antennæ to be directed upwards when the head is retracted; base very closely applied to the elytra, a little lobed in the middle; finely punctate, pubescent. Eyes concealed when the head is retracted, behind obliquely truncate and straight, in front rounded, not emarginate. Scutellum moderately large, forming an equilateral triangle. Elytra rather finely and sparingly punctate, shining, except that the copious pubescence much conceals the surface; towards the sides with distant larger punctures serially placed. Under-surface piceous, pubescent, finely punctate. Legs sordid red.

Hab.: Shan States (*Manders*).

Two specimens only were met with of this interesting little insect.

CACCOTHRYPTUS, *n. gen.*

Corpus ovale, compactum, setosum. Antennæ fragiles, haud clavatæ, 11-articulatæ, articulis secundo tertioque elongatis subæqualibus, secundo paululum deplanato, parum discrete curvato. Caput ad retractionem in thoracem satis adaptatum.

This genus has an extreme resemblance in appearance and in most of its characters to the Central American *Euthryptus*, but it differs in the eyes being largely visible from above, in the elongate third joint of the antennæ, and in the greater width of the ligula and maxillary palpi. Although the exposure of the eyes, and the fact that the head is only imperfectly retractile, differentiate the genus from the normal *Limnichini*, yet I think there can be no doubt that it belongs to that subfamily. The mode of packing the legs and the structure of the hind femora are those characteristic of, if not absolutely peculiar to, the *Limnichini*. The prosternum is large, somewhat pendant in the middle in front, and its broad process fits very accurately into the mesosternal cavity. The middle coxæ are widely separated. The first ventral segment is rather short, so that the trochanters are but little distant from its hind margin. The hind coxæ are flattened and dilated in front, so that the portion received into the coxal groove is very different in plane, in sculpture, as well as in clothing, from the part that remains exposed when the limb is contracted.

CACCOTHRYPTUS COMPACTUS, *n. sp.*

Ovalis, sat convexus, niger, vix subænescens, pube flavo-grisescente maculatum vestitus; elytris fortiter irregulariter punctatis; antennis pedibusque fuscis, subflavescentibus, tarsis rufis. Long., $4\frac{1}{2}$ mm.

Antennæ slender, rather long, very loosely articulated and fragile, second joint long and slender, slightly longer than the third, terminal joint just perceptibly broader than the preceding one. Head densely and finely punctured, setose. Thorax strongly transverse, continuous in outline with the elytra, closely and finely but somewhat irregularly punctured, pubescent. Elytra with very numerous large and deep punctures, not arranged in regular series, though an imperfect seriation exists; rather densely pubescent, the pubescence arranged and coloured so as to give rise to a faint spotted appearance.

Hab. : S. E. Borneo, Martapura (*Doherty*).

This is the largest and most remarkable of the *Limnichini*.

CYPHONICHUS ORIENTALIS, *n. sp.*

Ovalis, convexus, nigerrimus, pube erecta fusco-grisescente vestitus, parce punctatus, nitidus, pedibus rufis; antennis fusco-rufis. Long., 3 mm.

Antennæ very slender and fragile, each joint longer than broad; the terminal joint a little longer than the preceding one. Thorax much narrowed in front, bisinuate at the base on each side in adaptation to the form of the elytra, finely, rather sparingly punctate, shining, although rather densely pubescent. Elytra shining, sparingly punctate, the punctures very fine, but on the basal part with larger punctures subseriately arranged. The pubescence is rather abundant, suberect, dark in colour though not black, and not at all maculate.

Hab. : S. E. Borneo, Martapura (*Doherty*).

This species is so extremely like the Central American *C. vestitus* that the two might readily pass for one and the same. *C. orientalis* is, however, more convex and shining, the punctuation is more definite and easily appreciated, and the sinuation of the base of the thorax is deeper.

Cambridge: *February*, 1902.

NOTES ON SOME COLEOPTERA OF THE BRENT VALLEY, 1901.

BY W. E. SHARP.

The season which has just closed has been the reverse of a favourable one for the Coleopterist. A year without a spring, and in which winter carried well into April, was succeeded by a hot and exceptionally dry summer, concluded by a cold short autumn, has presented a succession of conditions singularly adverse to the abundant distribution and increase of beetle life. Still, to the working Coleopterist, no season or locality is quite unproductive, and during last April I was able to take for the first time a number of species of *Hydradephaga* and *Palpicornia* from some ponds close to the course of the river Brent. As Prof. T. Hudson Beare, in a recent number of this Magazine (*Ent. Mo. Mag.*, vol. xxxvii, p. 280), has noted most of these, it will be unnecessary here to recapitulate them. To his list, however, should be added as denizens of these waters, *Anacæna bipustulata*, *Berosus luridus*, and *B. signaticollis*. These ponds, in which such species as *Copelatus agilis*, *Hydroporus granularis*, and all the common *Philhydri*, were unusually abundant in May, had become completely dry by the end of June, and remained absolutely waterless till quite the end of October. I shall note with some curiosity what effect a drought so prolonged will have on the beetle population in the ensuing spring.

Near the Brent river are many orchards and market gardens; here heaps of vegetable refuse accumulate towards the close of summer. These heaps during autumn and on mild winter days swarm with the commoner, and maintain a scattered population of some of the less frequent, *Coleoptera*. From such heaps I took last year *Celia silphoides*, *Medon melanocephalus*, *Stilicis fragilis*, *Coprophilus striatulus*, *Hapalaræa pygmæa*, *Heterothops dissimilis*, *Philonthus quisquiliarius*, *Hister 12-striatus*, and *Carpophilus hemipterus*, the last an unexpected resident in such a nidus. *Anthicus antherinus* was abundant in the late autumn, while *Tachinus subterraneus*, *Megarthus depressus*, and hosts of common *Staphylinidæ*, were in immense abundance under the bark of elder near the ground. In this orchard in November *Prognatha quadricornis* was common.

A little marsh of an acre or two in extent close to the river has provided me with a few species worth noting. At grass-roots in the winter, *Pterostichus minor* was abundant, and *Stenolophus vespertinus*, rare; here I also took *Bryaxis impressa*, *Calodera athiops*, *Stenus melanopus*, *Boæthetus laviusculus*, and *Myllæna intermedia* (?), and in June swept *Corymbites tessellatus* from the reeds, and *Strophosomus faber*, *Telephorus thoracicus*, and on one occasion *Atomaria linearis* in immense multitudes, from the surrounding herbage.

Near this marsh is a row of pollard willows, many partially or wholly rotten. In one of these I was fortunate in taking, in June, three specimens of *Opilo mollis*, as well as *Dorcatoma chrysomelina*; *Melanotus rufipes* and *Leiopus nebulosus* also occurred here during the summer. From a decayed oak post hard by I was very pleased to extract the rare *Lyctus brunneus*.

In this district, but nearer Southall, are many deserted brickfields. Here, on heaps of loose rubbish, grows the yellow melilot (*Melilotus officinalis*), and the ground is carpeted with *Matricaria inodora*. From the former I swept *Tychius meliloti* in abundance, and at its roots found the variable *Sitones meliloti* not rarely, but searched in vain for the *Apion* attached to that plant, while, from the *Matricaria*, *Pseudostyphlus pilumnus* was to be swept without difficulty.

A few years ago the Brent river for some miles of its course must have been a pretty enough stream "with many a silvery water break above the golden gravel," but it had an ugly trick of sudden flood after winter rains, and since the drowning of a wayfarer in one of these risings, its banks have been annually straightened, the bed deepened, and the bars of sand and gravel all cleared away. Such operations are of course much to the detriment of its riparian *Coleoptera*, and I can only note a few of the common *Bembidia* as at all abundant there. I took, however, one specimen of *B. obliquum* on a little patch of shingle, and on the mud more commonly *Tachyusa flavitarsis*, *T. concolor*, and *Trogophlæus elongatulus*. *Alliaria officinalis* still grows abundantly on its banks, and from its flowers in April were swept *Ceuthorrhynchus alliariæ*, *C. constrictus*, *C. rugulosus*, and *C. melanostictus*.

If you follow the upward course of the stream for a few miles you arrive at its source, the artificial lake of Hendon. Here, in a little swampy meadow beneath the great south wall of the reservoir, *Poophagus sisymbrii* was common in June, and I also took *Ceuthorrhynchus cochleariæ*, *Telephorus lateralis*, and *Litodactylus leucogaster*.

The banks of this lake are a well-known locality for several local *Coleoptera*, but they are difficult to work when the water is low, as it was all last summer. On the single occasion on which I visited them with my friend, Mr. E. C. Bedwell, we took only one specimen of *Chlænium nigricornis*, but found *Bembidium flavomaculatum*, *B. lampros*, var. *velox*, *B. bipunctatum*, and *Stenolophus vespertinus* fairly common, *Heterocerus lævigatus* abundant, and took a few specimens each of *Philonthus atratus* and *Actobius procerulus*.

"Ledsham," Hanwell, W.:

January, 1902.

Tachys parvulus, Dej., in the New Forest.—A specimen of this rarity was taken last June by my friend Mr. H. Heasler on some sphagnum, on the edge of a wet low-lying piece of land just beyond Emery Down, Lyndhurst. It occurred in company with *Cryptobium* and other common bog insects. This is an interesting capture, as the insect has hitherto only been taken on the coast in this country (i. e., at Wallasey, Ent. Mo. Mag., xxii, 43, and at Portscatho, Ent. Mo. Mag., xxxiii, 213). The species is, however, by no means confined to the coast on the

continent, since Bedel says (Col. Bassin de la Seine, 151) that it is found on the margins of ponds under refuse, and in the earth at the roots of heather, banks of rivers, and in sandpits.—E. A. NEWBERRY, 12, Churchill Road, N.W.

Lasiosomus enervis, H.-S., near Doddington, Kent.—Mr. Saunders has detected this rare bug amongst some insects taken by me last summer near here. I regret to say I did not know it at first sight (see Saunders' Hemiptera-Heteroptera, p. 92), or possibly I might have taken more, and I cannot say exactly when or how I came across it.—ARTHUR J. CHITTY, Huntingfield, Faversham Kent: Dec. 30th, 1901.

Pentatoma fuscispina on the North Essex Coast.—On August 19th last I was fortunate enough to capture a specimen of this rare species on the North Essex Coast. Mr. Saunders, in his "British Hemiptera-Heteroptera," says that only six British examples are known to him, all of which were taken in Devonshire.—BERNARD S. HARWOOD, 94, Station Road, Colchester: February, 1902.

Nomada armata at Colchester.—In June, 1901, I captured five or six examples of the rare *Nomada armata* near Colchester, together with both sexes of *Andrena Hattorfiana*. One ♀ of the latter was a fine specimen of the red banded variety. *N. armata* had not previously been taken in Essex, and the red form of *A. Hattorfiana* had not been seen since 1887.—ID.

Papilio Machaon at Chippenham Fen.—Mr. Dale, in his "Historical Notes on *Papilio Machaon*" (pp. 37 and 38 ante) says, "it is still common in Wicken Fen, Cambridgeshire, but not in Chippenham Fen, only a few miles away." Although I have never seen the perfect insect in Chippenham Fen it must occur there, as the larvæ have been taken feeding on *Angelica sylvestris*. The milk parsley (*Peucedanum palustre*), the ordinary food plant of *Machaon* in Wicken Fen and in the Norfolk Fens, does not occur at Chippenham.—H. Goss, Surbiton: February, 1902.

Abundance of Dasypolia templi near Halifax.—When I first began to take an interest in Entomology forty years ago this insect was apparently scarce, and very difficult to obtain in any condition, and a perfect specimen was a great rarity. At that time its food plant was unknown, and its only known haunt was at the bottom of stone heaps on the sides of the high roads, which were placed there pending the repair of the road. Mr. Porritt, in his List of Yorkshire Lepidoptera, writes, "Our County has always been considered head-quarters for this moth, and by far the majority of cabinets in the country have been supplied with specimens from the South-West Riding, in some parts of which it is very common." A man who was a good and ardent entomologist, James Varley, and who lived at Almondbury Bank, near Huddersfield, spent much time in the winter months in turning over stone heaps, and was often successful in getting the imago during its hibernation. Some years ago the Halifax Town Council extended the radius of their Borough boundary, and consequently the lighting of their roads, and I soon found that these lights had attractions for the insect, and I could take a dozen or so during the months of Octo-

ber and November, but it was only by walking a long distance in very cold weather. About six years ago, however, I happened to walk that way during the daylight, and I naturally looked about as I went, and found one on a lamp post, and more on the ground near to it, and I was not long in coming to the conclusion that it was not necessary to travel the road *at night* to get specimens, and that there were more of them and much easier to take in broad daylight. During the last two months I have taken upwards of 50 specimens in this way. On two occasions I have come across such numbers about one lamp (10 to 12) as to lead me to think they had been "*assembling*." Can it be that occasionally odd ones hibernate before pairing?—EDWARD HALLIDAY, Akroydon, Halifax, Yorks: December 12th, 1901.

Larvæ of Sphinx convolvuli in Northumberland.—Will you allow me to chronicle what I believe to be an absolutely unprecedented occurrence. Mr. John Proudlock, a young collector, though not a very young man, residing near Morpeth, Northumberland, had some strange larvæ sent him from a place called Boiling Well, near Seaton Sluice, in the same county. Much interested in them for their size and beauty, he went down himself to search for more. They had been taken on a garden hedge, and he soon found there were plenty of them. Counting two or three that had been crushed by the servant girl, as "nasty crawly things," the total capture was between 50 and 60. A specimen, and a spray of the food plant (which proved to be *Convolvulus sepium*) were sent to me for identification. The larva sent me was unfortunately crushed in the post, but was easily identified. All the others fed well and all went to earth, but unfortunately did not produce the perfect insects. At my request he has dug up the pupæ. All are dead, and some decayed and broken up, but sufficient remains were found, including one complete pupa, and the loop-like trunk-case of another, to render certain the identification. Each had formed a large smooth cavity in the earth, some seven inches deep, others deeper, to one foot.—JOHN E. ROBSON, Hartlepool: January, 1902.

Note on the egg laying of Nonagria sparganii.—Though quite young larvæ of this species were long ago described and figured by the late William Buckler, nothing, I believe, was then known of the eggs, or where they were laid. It may, therefore be worth while to record that a batch of eggs came under my observation in September, 1899. These were laid—much as those of *N. typhæ* are—all glued down firmly (in single file), in a groove formed by the involute edge of a leaf blade of *Iris pseud-acorus*. The cement was visible, shining like gum arabic, and so stuck down the margin, that as it withered and turned brown, the eggs were almost concealed. They were very small for the size of the moth—of a spherical shape, with much flattened poles, and even a slight hollow at the top, very finely striated, the colour being of a very light brown, thus assimilating wonderfully to the brown leaf during the winter. They did not hatch till the 11th and 12th of May, 1900, when the young larvæ very soon commenced mining the leaves of the *Iris*, which had been provided for them. From their manner of feeding, but little could be seen of them. Some, however, reached the stage of the smallest figured by Mr. Buckler, and two or three others became nearly full-grown larvæ. Probably it will not sur-

prise those who have experienced the difficulty of dealing with the larvæ of *N. sparganii*, that none of them reached maturity.—WILLIAM R. JEFFREY, Ashford: February 12th, 1902.

Habits of Lipoptena cervi.—This parasitic Dipteron, attached to deer, was taken here two years ago by W. H. Somerset, flying in plenty, and sometimes settling on human beings, on a calm sunny day towards the end of November, on the outskirts of Savernake Forest, which is stocked with both red and fallow deer, but no deer were very near at the time. The lateness of the season and probably exceptional abundance of the insect seem worthy of record.—E. MEYRICK, Elmswood, Marlborough: January 16th, 1902.

The efficacy of glacial carbolic acid as a preventive of mildew—a severe test.—On opening the current number of the Magazine, I was much shocked at seeing the announcement of the death of my correspondent, Mr. Lionel de Nicéville. It seems but "the other day" that I received a particularly kind and interesting letter from him. Seven years ago he wrote to me in great distress as to his collection of *Rhopaloeera*, in the Indian Museum, Calcutta, which were being ruined by mildew, and asking if I could suggest a remedy for the evil. Amongst other measures, I advised him to try carbolic acid, either in the manner suggested by Dr. Sharp, viz.: "Calvert No. 2." on sponge; or wool saturated in the glacial acid (melted by heat), and wound round the head of a large pin, until a ball the size of a marble was formed. I do not know who originally suggested this method, but it was the one adopted by Mr. de Nicéville, who thus wrote about it last summer. "For the three last rainy seasons (15th June to 15th September) I have used the glacial carbolic acid on wool, pinned into the bottom corners of my three hundred boxes, and found that no fresh mould has shown itself, I have applied it only once a year, at the beginning of the rains. Perhaps once again, in the middle, would be a greater security, but in this hot country, and on such work one cannot use a punkah, and as the perspiration literally runs off one's nose and chin into the boxes, the labour and discomfort is so abominable that I have only gone through my boxes once. It has been quite successful."

If this treatment is so effective under the trying conditions of an Indian monsoon it surely ought to suffice to protect our collections in the dampest situations in this country. It may not be so destructive to micro-organisms as Formol, but it has one great advantage over the latter, namely, that green tints are unaffected by it.—H. G. KNAGGS, Folkestone: February 12th. 1902.

Reviews.

A LIST OF BRITISH DIPTERA, 2nd Edition: by G. H. VERRALL, ex-President of the Entomological Society of London. Pp. 47, small 4to. Published by the Author, Sussex Lodge, Newmarket. 1901.

The author is to be congratulated in being able to say that the first edition of this List, published in 1888, is exhausted, and also that a new edition is necessary, *because since then about 300 species have been added, and moreover there have been some 500 changes in synonymy, &c.* He deplores the fact that no young

worker will take up the *Cecidomyiæ*, but states that the *Mycetophilidæ* are much improved, though still in a most unfinished condition: the *Stratiomyidæ* to *Cyrtidæ* are included in the proposed second vol. of "British Flies," and the *Chironomidæ* he hopes will form the third. In 1888 only 13 British Fleas were known; now (due principally to the Hon. N. Rothschild) there are thirty. This new List does not entirely supersede the old one, inasmuch as Pt. iii (Reputed British species) must still be consulted, Pt. iii of the new List being only a supplement to that of the old one. In get-up the two Lists are practically precisely similar, the only difference being the use of a blacker type for the families in the new List; the small 4to form (objectionable to some of us) is still retained. We echo the words with which the author concludes his preface. "Let this List quickly give place to another."—R. McL.

INSECTS INJURIOUS TO STAPLE CROPS: by E. DWIGHT SANDERSON, B.S.Agr., Entomologist to the Delaware Agricultural Experimental Station. Pp. 5 and 295 8vo. New York: John Wiley and Sons; London: Chapman and Hall. 1902.

This is a very useful, very cheap, and profusely illustrated book on Economic Entomology, in part a reprint of letters to agricultural journals, &c. A few of the illustrations are original, but the majority are time-honoured reproductions from the pencils of others, Riley and Howard standing out prominently. That they are hard to beat is acknowledged by the fact of their frequent reproduction. The first four chapters are occupied by generalities; then follow grains and grasses, wheat, Indian corn, weevils in grain, clover, cotton, tobacco, potato, sugar-beet, hop-plant, concluding with a very useful summary of insecticides. We recommend this work as a useful addition to the already large library of books on Economic Entomology.

DIE PHORIDEN: by TH. BECKER. (Abh. k. k. zool.-bot. Ges. Wien, i, pp. 1—100, pls. I—V). 1901.

This work, which forms a Monograph of the European species of *Phorida*, is undoubtedly one of considerable merit. Its value is enhanced by the fact that the author has been able to examine and compare the type species in the collections of Meigen, Winthelm, v. Roser, Strobl, Zetterstedt, Schiner and Egger; on pages 69—75 he gives a list of these type specimens with notes.

The author divides the genus *Phora* into two groups, and gives most useful tables for the determination of the species. He considers that there are 74 European species in the Family, 23 of which he describes as new or re-names.

The first three plates mainly represent the differences in venation; but in the last two E. W. Rubsaamen is responsible for some excellent drawings of the genitalia, including those of what would appear to represent a fourth species of *Trineura*, but as no other characters could be found to separate it from *T. aterrima* the author wisely refrains from giving it a name.

In the list of species at the end I fail to find *P. Carpentieri*, Gob. (1877), and *P. posticata*, Strobl (1898), or *P. sanguinea*, Lw., 1870 (Turkestan), and *P. setigera*, Lw., 1874 (Sarepta); while among the foreign *Phorida* I miss the names of *P. albidihalteris*, Felt, *agarici*, Lintn. (1895), *camariana*, Coquerel (1848), *Cleg-horni*, Big. (1890), *navigans*, Frauent. (1867), *omnivora*, Huds. (1892), and *Hieronymus pygmaeus*, Weyenb. (1886).

The author is to be congratulated upon the production of a most useful monograph, which marks a distinct advance in our knowledge of what was hitherto a somewhat neglected Family of the *Diptera*.—J. E. COLLIN.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *January 20th, 1902*.—Mr. H. WILLOUGHBY ELLIS, Vice-President, in the Chair.

Mr. R. C. Bradley exhibited a series of *Hyetodesia vagans*, Fall., a species which is not included in Mr. G. H. Verrall's recent list of British *Diptera*, but which is common and well known in Sutton Park; also a specimen of *Sphex planipennis* taken by Mr. J. T. Fountain in Jersey last year: it is a large and handsome fossor, which is unknown in Britain. Mr. C. J. Wainwright, *Rhyssa persuasoria*, L., one of our largest, handsomest, and rarest *Ichneumonidae* taken by Mr. J. T. Fountain in Derbyshire last year; also a fine series of the Syrphid *Tropidia sata*, Harris (*milesiformis*, Fall.), taken near Paignton, S. Devon, in a damp meadow by the sea; it is a species which is common in the fens, but was not known before from the West of England, it is, however, in abundance at this one spot. Mr. H. Willoughby Ellis, the following *Coleoptera*:—*Nebria Gyllenhali* from Matlock; *Pterostichus oblongo-punctatus* from Buxton, and *Liosoma ovatum*, var. *collaris*, from Knowle. The last named was a form which he said some Coleopterists believed to be only an immaturity, but he had taken it at all times of the year, and many specimens were undoubtedly mature. Mr. Aug. D. Imms, two extreme forms of *Satyrus Semele*, L., from Wales: one, a very dark and strongly marked individual, was taken on the slate near Barmouth; the other, a light bleached-looking but apparently perfect specimen, was taken on limestone near Llandudno. Mr. Imms read a paper upon "The Structure and Distribution of the *Collembola*," in which he gave a thorough account of the external and internal anatomy, with some account of the embryology; it was well illustrated with blackboard drawings, and with microscope preparations.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: THE ANNUAL MEETING was held at the Royal Institution, Liverpool, on *January 13th, 1902*. Mr. R. WILDING, Vice-President, in the Chair.

Mr. Fredk. Birch, Joint Secretary, in presenting the Council's Report, gave a short *resumé* of the work of the past session. The Treasurer then read his statement, which showed an increased and satisfactory balance to be carried forward. On the motion of Mr. Oulton Harrison, it was resolved that the Report of the Council and Treasurer's Balance Sheet be printed and circulated.

The following Officers were then elected to serve during 1902:—President, Mr. S. J. Capper, F.L.S., F.E.S.; Vice-Presidents, Rev. R. Freeman, M.A., and Dr. H. Dobie; Secretaries, Messrs. Frederick Birch, and E. J. B. Sopp, F.R.Met. Soc., F.E.S.; Treasurer, Dr. J. Cotton, F.E.S.; Librarian, Mr. F. C. Thompson; Council, Messrs. R. Wilding, F. N. Pierce, F.E.S., A. Tippins, H. Tonkin, and W. A. Tyreman.

In the absence of the President, the retiring Vice-President, Mr. R. Wilding, delivered a most interesting Address, reviewing in an exhaustive manner the general

entomological work of the first year of the century, with special reference to many matters of local importance. The Rev. R. Freeman proposed, and Mr. F. N. Pierce seconded, a vote of thanks to Mr. Wilding, both for his able address and for his valuable services in the chair during the past year, which was heartily accorded, and in response to the unanimously expressed wish of the members present it was resolved that the address be printed and bound in the Annual Report. On the motion of Mr. Sopp, a cordial vote of thanks was also tendered to Mr. Fredk. Birch for his indefatigable labours as Secretary during the past three Sessions.

The following exhibits were made during the evening:—*Celiozys mandibularis*, a Hymenopteron new to the British list captured at Wallasey by Mr. Fredk. Birch, who also exhibited on behalf of the Rev. T. B. Eddrup various species of *Lepidoptera* sent for distribution among students of the group; *Vanessa c-album* taken in the Liverpool district by Mr. G. A. Dunlap; and *Corydia Petiveriana*, an attractively decorated cockroach from Madras by Mr. Sopp.

Monthly Meeting, *February 10th*, 1902.—Mr. R. WILDING in the Chair.

Letters were read from Messrs. B. H. Crabtree and H. Massey with reference to their arrangements in connection with the Society's forthcoming visit to Manchester. A valuable paper was then read by Mr. Willoughby Gardner, F.L.S., F.R.G.S., F.E.S., on the Life Habits of the *Hymenoptera-Aculeata*, dealing in a full and complete manner with all that is at present known of the life history of these most useful hexapods. After describing the characteristic features of the Order as a whole, he exhaustively reviewed the various families constituting the section *Aculeata*, the females of which are armed with a retractile sting. Dealing first with the *Heterogyna*, or social ants, he gave many facts of interest connected with the instinct and economy of these remarkable insects, and mentioned that most of our indigenous species belonged to the family *Formicidæ*, or mining ants. He also described the methods pursued by the Fossores in the capture and preservation of their prey. Of the *Diploptera*, or true wasps, two families are native to Britain, their value on account of their wholesale destruction of Lepidopterous and other injurious larvæ being fully discussed. After enumerating the Coleopterous and other inmates of the nests of *Vespa vulgaris* and *V. germanica*, the lecturer passed to a consideration of the *Anthophila*, or bees, alluding to the great part played in nature by these pollen loving insects in the fertilization of clover and other plants. Having referred to *Colletes cunicularia*, our "Wallasey Bee," and *Celiozys mandibularis*, a recent local addition to the British list, the concluding portion of the address was devoted to the life history of *Apis mellifica*, the common honey bee, in which many interesting, historical, economic, and other matters were ably dealt with. At the close of his paper Mr. Gardner presented his recent monograph on the *Hymenoptera-Aculeata* of Lancashire and Cheshire to the Library of the Society. A hearty vote of thanks was tendered Mr. Gardner for his interesting paper, and also for his welcome gift; after which the following exhibits were made:—*Bembidium saxatile* from Garston, by Mr. F. Birch; *Bembidium stomoides* from the River Hodder, by Mr. C. E. Stott; *Tropiphorus tomentosus* (Heswall), *Berosus affinis* (Moreton), *Heptaulacus villosus* and *Ægialia rufa* (Wallasey), *Carcinops 14-striata*, &c., by Mr. B. Wilding; and a pair of the earwig, *Pyragra brasiliensis* from Espirito Santo, by Mr. E. J. B. Sopp. Mr. G. O. Day, some rare Dutch

books by Sepp, the life-like coloured figures in which were greatly admired. Mr. Oulton Harrison, some excellent life-size photos of Lepidopterous larvæ taken direct from nature.—E. J. BURGESS SOPP, *Hon. Secretary*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
Jan. 9th, 1902.—Mr. W. J. LUCAS, B.A., F.E.S., Vice-President, in the Chair.

Mr. Tonge, Redhill, Surrey, was elected a Member.

Mr. Hewitt exhibited a specimen of the rare Homopteron, *Cicadetta montana*, taken flying in Stubby Copse, New Forest, on July 7th. Mr. R. Adkin, five specimens of *Melanippe galiata*, which emerged on December 8th last, in a cage outdoors, and protected only from rain and direct sunshine; the ova were laid towards the end of August. Mr. MacArthur, specimens of *Triphæna comes*, bred on December 26th and 27th from ova laid in July by an Isle of Lewis female. Mr. Lucas, slides of particular natural objects in the S.W. district, including the corner of the Black Pond, frequented by the lesser dragon-flies. Mr. Main, slides made by himself of the larvæ of *Samia Cceropia*, and of *Amphidasya betularia*; of the imago of *Pieris napi* drying its wings after emergence from the adjoining chrysalis case; and of a batch of ova of *Macrothylacia rubi* on a sprig of heather.—HY. J. TURNER, *Hon. Sec.*

ENTOMOLOGICAL SOCIETY OF LONDON: SIXTY-NINTH ANNUAL MEETING,
Wednesday, January 15th, 1902.—The Rev. Canon W. W. FOWLER, M.A., F.L.S., President, in the Chair.

After an abstract of the Treasurer's Accounts, showing a large balance in the Society's favour, had been read by Colonel Yerbury, R.A., one of the Auditors, Mr. H. Goss, one of the Secretaries, read the Report of the Council. It was then announced that the following had been elected Officers and Council for the Session 1902—1903. President, The Rev. Canon Fowler, M.A., F.L.S.; Treasurer, Mr. Robert McLachlan, F.R.S.; Secretaries, Mr. Herbert Goss, F.L.S., and Mr. Henry Rowland-Brown, M.A.; Librarian, Mr. George C. Champion, F.Z.S.; and as other members of Council, Mr. R. Adkin, Professor T. Hudson Beare, F.R.S.E., Mr. Arthur J. Chitty, M.A., Mr. W. L. Distant, Mr. F. DuCane Godman, D.C.L., F.R.S., the Rev. Francis D. Morice, M.A., Professor E. B. Poulton, D.Sc., F.R.S., Mr. Edward Saunders, F.L.S., Dr. David Sharp, M.A., F.R.S., and Colonel C. Swinhoe, M.A., F.L.S. The President announced that he should appoint Dr. F. DuCane Godman, F.R.S., Professor E. B. Poulton, F.R.S., and Dr. D. Sharp, F.R.S., as Vice-Presidents for the Session 1902—1903. The President referred to the losses the Society had sustained during the past Session by the deaths of Mr. C. E. Collins, The Rev. Professor W. P. Dickson, D.D., Dr. H. W. Livett, M.D., Mr. Lionel de Nicéville, F.L.S., Miss Eleanor Ormerod, LL.D., and Mr. H. Vivian, M.A. He then delivered an Address in which he dealt chiefly with the question of Protective Resemblance and Mimicry in the case of the *Coleoptera*. At the conclusion of the Address, a vote of thanks to the President was proposed by Professor Poulton, seconded by Professor Meldola, and carried. A vote of thanks to the other officers was then proposed by Colonel Swinhoe, seconded by Mr. Distant, and carried. Canon Fowler, Mr. Goss, and Mr. Rowland-Brown replied, and the Proceedings terminated.—H. Goss and H. ROWLAND-BROWNS, *Hon. Secretaries*.

COLEOPTERA AND ACULEATE HYMENOPTERA IN EAST KENT
IN 1901.

BY ARTHUR J. CHITTY, M.A., F.E.S.

Insects have been by no means abundant during the past spring and summer in the part of East Kent about five miles inland from Faversham and Sittingbourne, and elsewhere around Faversham, in which I have been able to collect; but as I have always found to be the case, a few good things not previously noticed in the locality have turned up singly. It is difficult to account for these solitary specimens. I have at times thought that the ground where I mostly collect (which I may say is very confined) must be an outlying portion of some district where interesting species abound, but inasmuch as the further afield I go the less I get, I think on the whole that these insects must come from a considerable distance, being carried by winds or otherwise on to the high ground, which runs roughly from Maidstone to Ashford, and being then unable, owing to too great dryness, to maintain a footing. I had hoped that a wet March like that we had during 1901 would be suitable to *Coleoptera*, but low temperature prevented this, and the subsequent prolonged drought was very unfavourable, except to beetle pests like *Phyllotreta*, which of late years have been very troublesome alike to farmers and gardeners, and have this year prevented there being any turnips at all in the county until towards the end of September.

I made several spring visits to the Blean Woods for ants' nest beetles, and on one of these I had the good fortune to be accompanied by Mr. Donisthorpe, who has done so much good work in this connection; but I discovered no beetles beyond those already recorded by Mr. J. J. Walker in this Magazine (vol. ix, 2nd series, p. 208), and I was distinctly disappointed in finding neither of the Histerids mentioned by him. *Dinarda* also was rare, and only secured singly, requiring a great deal of searching. I found it somewhat away from that part of the nest where the ants were thickest. *Myrmedonia humeralis*, Gr., was abundant on one occasion only.

My visit on May 11th produced a female of the rare ant, *Formicocenus nitidulus*, Nyl.; it was taken in a part of a nest of *Formica rufa*, consisting of old stuff and almost devoid of ants. I have been closely looking out for the insect for some time, and it must I think be rare, but the nests of *F. rufa* in the Blean Woods are so large and so numerous that it may be overlooked. Except for ants and for those species which either live at peace with them (if there are any

The author is to be congratulated upon the production of a most useful monograph, which marks a distinct advance in our knowledge of what was hitherto a somewhat neglected Family of the *Diptera*.—J. E. COLLIN.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *January 20th, 1902*.—Mr. H. WILLOUGHBY ELLIS, Vice-President, in the Chair.

Mr. R. C. Bradley exhibited a series of *Hyetodesia vagans*, Fall., a species which is not included in Mr. G. H. Verrall's recent list of British *Diptera*, but which is common and well known in Sutton Park; also a specimen of *Spheg planipennis* taken by Mr. J. T. Fountain in Jersey last year: it is a large and handsome fossor, which is unknown in Britain. Mr. C. J. Wainwright, *Rhyssa persuasoria*, L., one of our largest, handsomest, and rarest *Ichneumonidae* taken by Mr. J. T. Fountain in Derbyshire last year; also a fine series of the Syrphid *Tropidia sata*, Harris (*milesiformis*, Fall.), taken near Paignton, S. Devon, in a damp meadow by the sea; it is a species which is common in the fens, but was not known before from the West of England, it is, however, in abundance at this one spot. Mr. H. Willoughby Ellis, the following *Coleoptera*:—*Nebria Gyllenhalii* from Matlock; *Pterostichus oblongo-punctatus* from Buxton, and *Liosoma ovatum*, var. *collaris*, from Knowle. The last named was a form which he said some Coleopterists believed to be only an immaturity, but he had taken it at all times of the year, and many specimens were undoubtedly mature. Mr. Aug. D. Imms, two extreme forms of *Satyrus Semele*, L., from Wales: one, a very dark and strongly marked individual, was taken on the slate near Barmouth; the other, a light bleached-looking but apparently perfect specimen, was taken on limestone near Llandudno. Mr. Imms read a paper upon "The Structure and Distribution of the *Collembola*," in which he gave a thorough account of the external and internal anatomy, with some account of the embryology; it was well illustrated with blackboard drawings, and with microscope preparations.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: THE ANNUAL MEETING was held at the Royal Institution, Liverpool, on *January 13th, 1902*. Mr. R. WILDING, Vice-President, in the Chair.

Mr. Fredk. Birch, Joint Secretary, in presenting the Council's Report, gave a short *resumé* of the work of the past session. The Treasurer then read his statement, which showed an increased and satisfactory balance to be carried forward. On the motion of Mr. Oulton Harrison, it was resolved that the Report of the Council and Treasurer's Balance Sheet be printed and circulated.

The following Officers were then elected to serve during 1902:—President, Mr. S. J. Capper, F.L.S., F.E.S.; Vice-Presidents, Rev. R. Freeman, M.A., and Dr. H. Dobie; Secretaries, Messrs. Frederick Birch, and E. J. B. Sopp, F.R.Met. Soc., F.E.S.; Treasurer, Dr. J. Cotton, F.E.S.; Librarian, Mr. F. C. Thompson; Council, Messrs. R. Wilding, F. N. Pierce, F.E.S., A. Tippins, H. Tonkin, and W. A. Tyreman.

In the absence of the President, the retiring Vice-President, Mr. R. Wilding, delivered a most interesting Address, reviewing in an exhaustive manner the general

entomological work of the first year of the century, with special reference to many matters of local importance. The Rev. R. Freeman proposed, and Mr. F. N. Pierce seconded, a vote of thanks to Mr. Wilding, both for his able address and for his valuable services in the chair during the past year, which was heartily accorded, and in response to the unanimously expressed wish of the members present it was resolved that the address be printed and bound in the Annual Report. On the motion of Mr. Sopp, a cordial vote of thanks was also tendered to Mr. Fredk. Birch for his indefatigable labours as Secretary during the past three Sessions.

The following exhibits were made during the evening:—*Calioxys mandibularis*, a Hymenopteron new to the British list captured at Wallasey by Mr. Fredk. Birch, who also exhibited on behalf of the Rev. T. B. Eddrup various species of *Lepidoptera* sent for distribution among students of the group; *Vanessa c-album* taken in the Liverpool district by Mr. G. A. Dunlap; and *Corydia Petiveriana*, an attractively decorated cockroach from Madras by Mr. Sopp.

Monthly Meeting, February 10th, 1902.—Mr. R. WILDING in the Chair.

Letters were read from Messrs. B. H. Crabtree and H. Massey with reference to their arrangements in connection with the Society's forthcoming visit to Manchester. A valuable paper was then read by Mr. Willoughby Gardner, F.L.S., F.R.G.S., F.E.S., on the Life Habits of the *Hymenoptera-Aculeata*, dealing in a full and complete manner with all that is at present known of the life history of these most useful hexapods. After describing the characteristic features of the Order as a whole, he exhaustively reviewed the various families constituting the section *Aculeata*, the females of which are armed with a retractile sting. Dealing first with the *Heterogyna*, or social ants, he gave many facts of interest connected with the instinct and economy of these remarkable insects, and mentioned that most of our indigenous species belonged to the family *Formicidae*, or mining ants. He also described the methods pursued by the Fossores in the capture and preservation of their prey. Of the *Diploptera*, or true wasps, two families are native to Britain, their value on account of their wholesale destruction of Lepidopterous and other injurious larvæ being fully discussed. After enumerating the Coleopterous and other inmates of the nests of *Vespa vulgaris* and *V. germanica*, the lecturer passed to a consideration of the *Anthophila*, or bees, alluding to the great part played in nature by these pollen loving insects in the fertilization of clover and other plants. Having referred to *Colletes cunicularia*, our "Wallasey Bee," and *Calioxys mandibularis*, a recent local addition to the British list, the concluding portion of the address was devoted to the life history of *Apis mellifica*, the common honey bee, in which many interesting, historical, economic, and other matters were ably dealt with. At the close of his paper Mr. Gardner presented his recent monograph on the *Hymenoptera-Aculeata* of Lancashire and Cheshire to the Library of the Society. A hearty vote of thanks was tendered Mr. Gardner for his interesting paper, and also for his welcome gift; after which the following exhibits were made:—*Bembidium saxatile* from Garston, by Mr. F. Birch; *Bembidium stomoides* from the River Hodder, by Mr. C. E. Stott; *Tropiphorus tomentosus* (Heswall), *Berosus affinis* (Moreton), *Heptaulacus villosus* and *Egialia rufa* (Wallasey), *Carcinops 14-striata*, &c., by Mr. R. Wilding; and a pair of the earwig, *Pyragra brasiliensis* from Espirito Santo, by Mr. E. J. B. Sopp. Mr. G. O. Day, some rare Dutch

books by Sepp, the life-like coloured figures in which were greatly admired. Mr. Oulton Harrison, some excellent life-size photos of Lepidopterous larvæ taken direct from nature.—E. J. BURGESS SOPP, *Hon. Secretary*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
Jan. 9th, 1902.—Mr. W. J. LUCAS, B.A., F.E.S., Vice-President, in the Chair.

Mr. Tonge, Redhill, Surrey, was elected a Member.

Mr. Hewitt exhibited a specimen of the rare Homopteron, *Cicadetta montana*, taken flying in Stubby Copse, New Forest, on July 7th. Mr. R. Adkin, five specimens of *Melanippe galiata*, which emerged on December 8th last, in a cage outdoors, and protected only from rain and direct sunshine; the ova were laid towards the end of August. Mr. MacArthur, specimens of *Triphæna comes*, bred on December 26th and 27th from ova laid in July by an Isle of Lewis female. Mr. Lucas, slides of particular natural objects in the S.W. district, including the corner of the Black Pond, frequented by the lesser dragon-flies. Mr. Main, slides made by himself of the larvæ of *Samia Cecropia*, and of *Amphidasys betularia*; of the imago of *Pieris napi* drying its wings after emergence from the adjoining chrysalis case; and of a batch of ova of *Macrothylacia rubi* on a sprig of heather.—HY. J. TURNER, *Hon. Sec.*

ENTOMOLOGICAL SOCIETY OF LONDON: SIXTY-NINTH ANNUAL MEETING,
Wednesday, January 15th, 1902.—The Rev. Canon W. W. FOWLER, M.A., F.L.S., President, in the Chair.

After an abstract of the Treasurer's Accounts, showing a large balance in the Society's favour, had been read by Colonel Yerbury, R.A., one of the Auditors, Mr. H. Goss, one of the Secretaries, read the Report of the Council. It was then announced that the following had been elected Officers and Council for the Session 1902—1903. President, The Rev. Canon Fowler, M.A., F.L.S.; Treasurer, Mr. Robert McLachlan, F.R.S.; Secretaries, Mr. Herbert Goss, F.L.S., and Mr. Henry Rowland-Brown, M.A.; Librarian, Mr. George C. Champion, F.Z.S.; and as other members of Council, Mr. B. Adkin, Professor T. Hudson Beare, F.R.S.E., Mr. Arthur J. Chitty, M.A., Mr. W. L. Distant, Mr. F. DuCane Godman, D.C.L., F.R.S., the Rev. Francis D. Morice, M.A., Professor E. B. Poulton, D.Sc., F.R.S., Mr. Edward Saunders, F.L.S., Dr. David Sharp, M.A., F.R.S., and Colonel C. Swinhoe, M.A., F.L.S. The President announced that he should appoint Dr. F. DuCane Godman, F.R.S., Professor E. B. Poulton, F.R.S., and Dr. D. Sharp, F.R.S., as Vice-Presidents for the Session 1902—1903. The President referred to the losses the Society had sustained during the past Session by the deaths of Mr. C. E. Collins, The Rev. Professor W. P. Dickson, D.D., Dr. H. W. Livett, M.D., Mr. Lionel de Nicéville, F.L.S., Miss Eleanor Ormerod, LL.D., and Mr. H. Vivian, M.A. He then delivered an Address in which he dealt chiefly with the question of Protective Resemblance and Mimicry in the case of the *Coleoptera*. At the conclusion of the Address, a vote of thanks to the President was proposed by Professor Poulton, seconded by Professor Meldola, and carried. A vote of thanks to the other officers was then proposed by Colonel Swinhoe, seconded by Mr. Distant, and carried. Canon Fowler, Mr. Goss, and Mr. Rowland-Brown replied, and the Proceedings terminated.—H. Goss and H. ROWLAND-BROWN, *Hon. Secretaries*.

COLEOPTERA AND ACULEATE HYMENOPTERA IN EAST KENT
IN 1901.

BY ARTHUR J. CHITTY, M.A., F.E.S.

Insects have been by no means abundant during the past spring and summer in the part of East Kent about five miles inland from Faversham and Sittingbourne, and elsewhere around Faversham, in which I have been able to collect; but as I have always found to be the case, a few good things not previously noticed in the locality have turned up singly. It is difficult to account for these solitary specimens. I have at times thought that the ground where I mostly collect (which I may say is very confined) must be an outlying portion of some district where interesting species abound, but inasmuch as the further afield I go the less I get, I think on the whole that these insects must come from a considerable distance, being carried by winds or otherwise on to the high ground, which runs roughly from Maidstone to Ashford, and being then unable, owing to too great dryness, to maintain a footing. I had hoped that a wet March like that we had during 1901 would be suitable to *Coleoptera*, but low temperature prevented this, and the subsequent prolonged drought was very unfavourable, except to beetle pests like *Phyllotreta*, which of late years have been very troublesome alike to farmers and gardeners, and have this year prevented there being any turnips at all in the county until towards the end of September.

I made several spring visits to the Blean Woods for ants' nest beetles, and on one of these I had the good fortune to be accompanied by Mr. Donisthorpe, who has done so much good work in this connection; but I discovered no beetles beyond those already recorded by Mr. J. J. Walker in this Magazine (vol. ix, 2nd series, p. 208), and I was distinctly disappointed in finding neither of the Histerids mentioned by him. *Dinarda* also was rare, and only secured singly, requiring a great deal of searching. I found it somewhat away from that part of the nest where the ants were thickest. *Myrmedonia humeralis*, Gr., was abundant on one occasion only.

My visit on May 11th produced a female of the rare ant, *Formicoxenus nitidulus*, Nyl.; it was taken in a part of a nest of *Formica rufa*, consisting of old stuff and almost devoid of ants. I have been closely looking out for the insect for some time, and it must I think be rare, but the nests of *F. rufa* in the Blean Woods are so large and so numerous that it may be overlooked. Except for ants and for those species which either live at peace with them (if there are any

such), or are protected against their attacks, hardly an insect was to be found in the woods, and I particularly noticed the complete absence of the early spring bees, the shallows being absolutely deserted on all occasions.

Amongst the ants and ants' nest beetles Mr. Donisthorpe and myself on one occasion were most successful in finding *Homœusa acuminata*, Märk. I took two specimens of this beetle in the spring of 1894, near Dodington, in cart ruts full of water. This spring, on May 12th, another example turned up in the same cart ruts, and search on a bank close by in nests of *Lasius niger* and *Formica fusca*, in which I have searched in vain at intervals since 1894, produced six more individuals curled up in the nests. The beetles were lying under stones which covered part of the nests, and I think had we been but little later we should have found they had flown away. Later in the day, when we returned to the spot, the bank was dried up, and beetles and ants had disappeared, and I have seen no signs of ants' nest beetles there since. Mr. Donisthorpe also captured one specimen of *Ponera contracta*, Latr., of which I had previously an unnoticed example from Dodington, and one of *Myrmecina Latreillei*, Curt., a species I had taken there before, and I have since found *Tetramorium cæspitum*, Linn., at no distance from the same place. *Claviger foveolatus*, Müll., occurred in some numbers in a *F. flava* nest, as well as on another bank half a mile off, near Wychling, the last mentioned locality also producing *Atemeles emarginatus*, Pk., in a nest of *Myrmica rufa*. These two banks are the only localities in the district which I know for beetles living in the nests of the ground ants.

Passing from ants to beetles. *Cænocara bovista*, Hoff., last seen in 1894, has again turned up, one specimen having been swept by me near Greet on May 28th, and on the evening of June 9th I captured a dozen more in a hayfield close by Huntingfield; they were confined to a very few yards. What I believe to be *Mordella aculeata*, L., was found on the same day sitting on the white cloth of the luncheon table, probably brought in with guelder-rose flowers. The allied species, *M. fasciata*, F., occurred commonly in August, 1900, on *Umbellifers*, about a hop field (does the larvæ feed on the poles?), and this year was noticed from early in June to the beginning of September. *Cryptocephalus 6-punctatus*, L. (one on June 1st, close to a nest of *F. rufa*), *C. aureolus*, Suff. (one on June 9th), and *C. bilineatus*, L. (one on July 21st, on a bank), were taken, and are the only specimens of these insects ever found by me here. A single specimen of *Homalota elegantula*, Bris., was swept on May 18th out of grass, at the point where a path

through a wood joins the road, and a male of *Homalota scapularis*, Sahlb., occurred at the end of May in a grass field close by, along with a pair of the red variety of *Amphicyllis globus*, F. (var. *ferrugineus*, Sturm). *Brachytarsus fasciatus*, Forst., one specimen beaten out of an *Umbellifer* beneath an elm, this species being new to me. *Phytæcia cylindrica*, L., occurred in some numbers in long grass by the corner of a copse, and one subsequently by the road side, but I refrained from really searching for this scarce Longicorn. *Hedobia imperialis*, L., four specimens beaten or swept singly at some distance from one another, is also new to me here. I failed this year to take either *Olytus mysticus*, L., of which one specimen occurred last year, or *Callidium alni*, L., of which I then took several. *Bruchus cisti*, F., and *Rhynchites conicus*, Illig., occurred in 1900, but were not to be found in 1901.

Other beetles to be mentioned are—the variety of *Bruchus atomarius* with black legs; *Malachius marginellus*, Ol., two specimens in July, which I think must have been blown or driven by the drought from the Whitstable district, from which it has previously been recorded; *Conopalpus testaceus*, Ol., one swept in July in a field which had been allowed to go out of cultivation; *Hister bimaculatus*, L., near Eastling Mill, in May; *Silpha littoralis*, L.; *Tropiphorus carinatus*, Herbst; *Mordellistena brunnea*, F., all taken singly in July; *M. abdominalis*, F., common in 1900, occurred sparingly; *Metæcus paradoxus*, L., one on the windowsill inside my bedroom on September 1st; *Licinus depressus*, Payk., one running on a path on May 12th. I took a specimen of *L. silphoides*, in October, near Chatham. *Quedius brevis*, Er., in the Blean Woods, in ants' nests, always in logs of wood in the nests, September 7th, common. *Dytiscus circumflexus*, F. (12), and *Hydrophilus piceus*, L. (one ♂), September 8th, in a pond in Sheppey, just across Elmley Ferry. In the autumn fungus on decayed ash produced *Mycetophagus piceus*, F. *Hypophlæus bicolor*, Ol., occurred under bark of dead ash, having evidently bred on fungus growing there.

In Sharsted Wood *Cis micans*, Herbst, turned up in fungus on a fallen birch; *Homalota marcida*, Er., occurred in all the localities in which I searched, including Cobham Park; and *Triphyllus punctatus*, F., was widely distributed, but scarce.

Passing to *Hymenoptera*, bees were scarce here in 1901, but my list of *Anthophila* for this district now includes above 100 species. Among the wasps, *Calicurgus hyalinatus*, F., and *Odynerus trimarginatus*, Zett., three specimens on August 26th, on wild mignonette, and

such), or are protected against their attacks, hardly an insect was to be found in the woods, and I particularly noticed the complete absence of the early spring bees, the shallows being absolutely deserted on all occasions.

Amongst the ants and ants' nest beetles Mr. Donisthorpe and myself on one occasion were most successful in finding *Homœusa acuminata*, Märk. I took two specimens of this beetle in the spring of 1894, near Dodington, in cart ruts full of water. This spring, on May 12th, another example turned up in the same cart ruts, and search on a bank close by in nests of *Lasius niger* and *Formica fusca*, in which I have searched in vain at intervals since 1894, produced six more individuals curled up in the nests. The beetles were lying under stones which covered part of the nests, and I think had we been but little later we should have found they had flown away. Later in the day, when we returned to the spot, the bank was dried up, and beetles and ants had disappeared, and I have seen no signs of ants' nest beetles there since. Mr. Donisthorpe also captured one specimen of *Ponera contracta*, Latr., of which I had previously an unnoticed example from Dodington, and one of *Myrmecina Latreillei*, Curt., a species I had taken there before, and I have since found *Tetramorium cæspitum*, Linn., at no distance from the same place. *Claviger foveolatus*, Müll., occurred in some numbers in a *F. flava* nest, as well as on another bank half a mile off, near Wychling, the last mentioned locality also producing *Atemeles emarginatus*, Pk., in a nest of *Myrmica rufa*. These two banks are the only localities in the district which I know for beetles living in the nests of the ground ants.

Passing from ants to beetles. *Cænocara bovistæ*, Hoff., last seen in 1894, has again turned up, one specimen having been swept by me near Greet on May 28th, and on the evening of June 9th I captured a dozen more in a hayfield close by Huntingfield; they were confined to a very few yards. What I believe to be *Mordella aculeata*, L., was found on the same day sitting on the white cloth of the luncheon table, probably brought in with guelder-rose flowers. The allied species, *M. fasciata*, F., occurred commonly in August, 1900, on *Umbellifers*, about a hop field (does the larvæ feed on the poles?), and this year was noticed from early in June to the beginning of September. *Cryptocephalus 6-punctatus*, L. (one on June 1st, close to a nest of *F. rufa*), *C. aureolus*, Suff. (one on June 9th), and *C. bilineatus*, L. (one on July 21st, on a bank), were taken, and are the only specimens of these insects ever found by me here. A single specimen of *Homalota elegantula*, Bris., was swept on May 18th out of grass, at the point where a path

through a wood joins the road, and a male of *Homalota scapularis*, Sahlb., occurred at the end of May in a grass field close by, along with a pair of the red variety of *Amphicyllis globus*, F. (var. *ferrugineus*, Sturm). *Brachytarsus fasciatus*, Forst., one specimen beaten out of an *Umbellifer* beneath an elm, this species being new to me. *Phytæcia cylindrica*, L., occurred in some numbers in long grass by the corner of a copse, and one subsequently by the road side, but I refrained from really searching for this scarce Longicorn. *Hedobia imperialis*, L., four specimens beaten or swept singly at some distance from one another, is also new to me here. I failed this year to take either *Olytus mysticus*, L., of which one specimen occurred last year, or *Callidium alni*, L., of which I then took several. *Bruchus cisti*, F., and *Rhynchites conicus*, Illig., occurred in 1900, but were not to be found in 1901.

Other beetles to be mentioned are—the variety of *Bruchus atomarius* with black legs; *Malachius marginellus*, Ol., two specimens in July, which I think must have been blown or driven by the drought from the Whitstable district, from which it has previously been recorded; *Conopalpus testaceus*, Ol., one swept in July in a field which had been allowed to go out of cultivation; *Hister bimaculatus*, L., near Eastling Mill, in May; *Silpha littoralis*, L.; *Tropiphorus carinatus*, Herbst; *Mordellistena brunnea*, F., all taken singly in July; *M. abdominalis*, F., common in 1900, occurred sparingly; *Metæcus paradoxus*, L., one on the windowsill inside my bedroom on September 1st; *Licinus depressus*, Payk., one running on a path on May 12th. I took a specimen of *L. silphoides*, in October, near Chatham. *Quedius brevis*, Er., in the Blean Woods, in ants' nests, always in logs of wood in the nests, September 7th, common. *Dytiscus circumflexus*, F. (12), and *Hydrophilus piceus*, L. (one ♂), September 8th, in a pond in Sheppey, just across Elmley Ferry. In the autumn fungus on decayed ash produced *Mycetophagus piceus*, F. *Hypophlæus bicolor*, Ol., occurred under bark of dead ash, having evidently bred on fungus growing there.

In Sharsted Wood *Cis micans*, Herbst, turned up in fungus on a fallen birch; *Homalota marcida*, Er., occurred in all the localities in which I searched, including Cobham Park; and *Triphyllus punctatus*, F., was widely distributed, but scarce.

Passing to *Hymenoptera*, bees were scarce here in 1901, but my list of *Anthophila* for this district now includes above 100 species. Among the wasps, *Calicurgus hyalinatus*, F., and *Odynerus trimarginatus*, Zett., three specimens on August 26th, on wild mignonette, and

O. melanocephalus, Gmel., may be mentioned. The year 1900 was particularly good for the *Anthophila*, and the following I think have not been recorded by me before. *Prosopis cornuta*, Sm., *dilatata*, Kirby, *hyalinata*, Sm., *confusa*, Nyl., and *brevicornis*, Nyl., *Sphecodes rubicundus*, V. Hag., *pilifrons*, Thoms., *puncticeps*, Thoms., *Halictus paucillus*, Schk., *Andrena angustior*, Kirby, *fucata*, Sm., *coitana*, Kirby, *fulvago*, Chr., *labialis*, Kirby, *niveata*, Friese, and *proxima*, Kirby, *Megachile Willughbiella*, Kirby, and *versicolor*, Sm., *Chelostoma florissomne*, L., *Osmia fulviventris*, Panz., *leucomelana*, Kirby, *Bombus Latreillellus*, Kirby, *Nomada fucata*, Panz., *Cœlixys rufescens*, Lep., and *acuminata*, Nyl. Mr. Norton has taken *Andrena ferox*, Smith, ♀, at Wychling, this is practically the same locality whence a ♂ was recorded by me in 1896. I have looked in vain ever since for the ♀. It seems to me to occur at a time when the bees get their honey from trees, such as sycamore and chestnut, and accordingly to be very difficult to take. I believe, however, that hawthorn is the recorded food.

In concluding I may mention that I had three very successful Saturdays in August at St. Margaret's Bay, and then, thanks to Mr. F. W. Sladen, captured the three British *Cilissæ* and several other specialities. *Apion limonii*, Kirby, occurred at the roots of its food plant beneath the cliff, and insects generally were more abundant than here.

Huntingfield, Faversham, Kent :

January 12th, 1902.

HISTORICAL NOTES ON *LYCÆNA ACIS* IN BRITAIN.

BY C. W. DALE, F.E.S.

This is the rarest and most valuable of our native butterflies, next to *Chrysophanus dispar*. Like it, it is an extinct British species, as none have been taken in our island for over twenty years, and genuine British specimens are now few and far between.

The first account we have of its occurrence is in Ray's *Historia Insectorum*, 1710, as follows :—"Alæ supinæ ad exortum cœlurescunt ; inferius e fusco albicant. Ocelli sex septemve in singulis alis. A. D. Dale, capta nobisque ostensa est."

Both Lewin, in 1795, and Haworth, in 1803, record it as being a very rare British species. But in 1833 the Rev. W. T. Bree wrote, "*Acis* was at one time considered to be an insect of very great rarity. In 1803 Haworth spoke of it as the rarest, perhaps, of our

British 'Blues.' Since that period the species has turned up in a variety of situations. Though by no means common, it appears to be widely distributed; nor is it peculiar to chalk districts, but seems to delight in woody situations abounding in grass. Probably it may be overlooked on the wing, and passed by for the common Blue." (London's Magazine). In 1862 Mr. E. Newman, in his preface to the Zoologist for that year, wrote, "How shall we account for the disappearance of *Acis*, which at Leominster in 1832 was certainly the most common of all the Blues? I am not aware that a single specimen has been seen in that locality for thirty years. Its food-plant cannot have failed; its pupæ cannot have been drowned, as water never rests on the hill sides where the insect once abounded; no fens have been drained; no common lands enclosed; no alteration has taken place in the temperature." In 1871 Mr. Hudd wrote in the Ent. Mo. Mag., vol. viii, p. 113, "It is extremely local. The cause of its rarity in the county is, I have no doubt, to be found in the fact that the ova and young larvæ are destroyed by the haymakers."

This certainly is not the reason why *acis* became extinct at Glanvilles Wootton, as the grass in the meadows which it frequented was cut and the hay carried in exactly the same fashion all through my father's life. In 1864 Mr. Hudson, in the Zoologist, p. 8985, states that, "the meadows at Epworth are of such large extent, and the insect appearing just before the grass is ready for the mower, a proper search for the larva is thus prevented."

The extinction is certainly not due to over collecting, and the larvæ and pupæ have never been seen in our country. The only reason that occurs to me for it is that, for some unexplainable reason, too great an abundance of their natural enemies, the Hymenopterous parasites, took place, probably of the genus *Apanteles*.

Acis has occurred in the following counties:—

YORKSHIRE.—Taken by T. W. Watson (Haworth's Lep. Brit., 1808).

LINCOLNSHIRE.—In meadows near Epworth. I have always found it between July 10th and 25th, S. Hudson, 1864 (Zoologist, vol. xxii, p. 8985).

CAMBRIDGESHIRE.—One specimen by J. C. Dale at Gamlingay on July 16th, 1819. In plenty on the Gogmagog Hills by H. Denny in 1833. In Madingley Wood, but not common, by J. F. Stephens (Ent. Mag., vol. i, p. 528). Cherry Hinton, Lawston, and chalk pits near Cambridge, many years ago, F. Bond. Formerly common in the county, but has not been taken for the last ten years, T. Brown (Newman's Butterflies, 1871). Papworth Everard, a bad one, early in August, 1857, and a very good one on June 20th, 1858, C. A. Beadan (Intelligencer, vol. iv, p. 141).

NORFOLK.—By J. Burrell (Haworth's Lep. Brit., 1808).

ESSEX.—In Young England for 1860 is a notice that one had been taken in Epping Forest, but of this capture Mr. Hockett states that he has very grave doubts (*Zoologist*, vol. xxi, p. 8604).

KENT.—Cuxton, twenty-five years ago (1871), Tutt (*Brit. Butterflies*, p. 166).

SUSSEX.—Lewes, H. T. Stainton (*Ent. Trans.*, 1858—61, vol. v, p. 234).

SURREY.—Windlesham Heath, Rev. Dr. Abbott, on July 16th, 1878.

SUFFOLK.—Foxhall Heath, one specimen, on June 24th, 1861. G. Garrett (*Bloomfield's Lepidoptera of Suffolk*).

HAMPSHIRE.—Brockenhurst, Mr. G. Samouelle. Near Ringwood, T. Vine, in 1830.

DORSETSHIRE.—Parley Copse, T. Vine, on May 28th, 1833. Hazlebury Bryan Loder. Powerstock, J. C. Dale, on June 27th, 1816. It was common at Glanvilles Wootton in 1803, once recorded in 1811, one in 1812, common in 1813, 1814, 1815 (one being taken as late as August 1st), and 1816, scarce in 1817 and 1818, common in 1819, 1820, and 1821, scarce in 1822 and 1823, common in 1825 (twenty specimens on June 13th), scarce in 1828, 1829, 1830, and 1831, common in 1834 and 1835, one only seen in 1836, a few in 1837, none recorded in 1838, scarce in 1839 and 1840, in 1841 a pair on June 19th, which were the last ever seen in Dorsetshire. I found them both on chalky places or on one hill called Dungeon, and also amongst long grass in meadows, especially in a field called Millett's Long Ground (J. C. Dale's *Ent. Journal*).

SOMERSETSHIRE.—Lewin, in his *Insects of Great Britain*, states, "that in the last week of August, 1793, he took two or three flying in a pasture field at the bottom of a hill near Bath, that they were much wasted, and appeared to have been long on the wing."

WILTSHIRE.—Amesbury, Mr. Edwards, prior to 1840.

WARWICKSHIRE.—The Rev. W. T. Bree writes, in *Loudon's Magazine*, vol. vi, p. 191: "On June 28th, 1804, I took a single female in an open plantation by the side of Coleshill Park. I have an example also of the same sex captured by a village shoemaker in another part of Warwickshire, I believe in the vicinity of Birmingham, and a collector at Coventry has several which he took some years ago in the neighbourhood of that city."

LEICESTERSHIRE.—One near Hinckley, on July 15th, 1812, Rev. W. T. Bree (*Loudon's Magazine*, vol. vi, p. 191).

WORCESTERSHIRE.—One by a friend near Dudley, in 1802 (*Loudon's Mag.*, vol. vi, p. 191).

GLOUCESTERSHIRE.—Two at Lower Guiting, on the Cotswolds, by the Rev. J. Greene, in the beginning of July, 1849 (*Zoologist*, vol. x, p. 3494); has been met with at Stinchcombe and on the Breakheart Hills near Wootton-under-Edge, V. R. Perkins (*Newman's Butterflies*, 1871).

HEREFORDSHIRE.—"I took five specimens in one of my father's meadows, called the 'Horse Leasow,' at Olden Barn, four miles from Leominster, on June 20th, 1832; four of them were females, and only one a male. I have repeatedly seen it since, and my nephew has taken two specimens, but many years ago" (E. Newman, in his *British Butterflies*, 1871). In the preface to the *Zoologist* for 1863

he says, "that at Leominster in 1832 *acis* was certainly the most common of all the Blues; and that he is not aware of a single specimen being seen in that locality for thirty years.

MONMOUTHSHIRE.—"I have taken one specimen at St. Julian's," G. Loch (Newman's Butterflies).

GLAMORGANSHIRE.—"In 1835, 1836, and 1837, I could take *acis* in plenty, but have never taken it since," T. Parry, of Merthyr (Entomologists' Weekly Intelligencer, 1859, vol. vi, p. 28). Croegid, near Llantrissant, rare, Evan John. "I have seen but not taken Glamorganshire specimens," J. T. Llewelyn (Newman's Butterflies). "Of this rare species, in June, 1871, I was fortunate in capturing six specimens, four of which were in first-rate condition," A. E. Hudd (Ent. Mo. Mag., vol. viii, p. 113). "On June 4th I had the pleasure of taking one male specimen of *Lycæna Acis* at Penarth, near Cardiff. Last year I captured eight males and two females, A. F. Langley, June 10th, 1875 (Entomologist, vol. viii, p. 161). From Cardiff comes the welcome news that this scarce butterfly was taken in 1874, again in 1875, and twelve specimens in 1876; twenty-eight specimens in all" (Entomologist, vol. x, p. 5). Six specimens were taken at the same place in 1877 (Entomologist, vol. xi, p. 104). These are the last that have been recorded from there.

PEMBROKESHIRE.—"In company with the Rev. C. T. Cruttwell I was fortunate in capturing a specimen of this rare butterfly, flying over thyme, at Tenby," W. Edwards (Entomologist, vol. xvi, p. 210 [1883]). This capture is doubted by Mr. Barrett in his recent work on British Butterflies.

ADDENDUM.—"*Lycæna Acis* in Sussex. I have in my collection a specimen caught by my friend, Mr. T. C. Hedley in the White Fields, Abbott's Wood, in July, 1881. I saw the insect caught, so that I am sure of its authenticity," J. A. Dynes, Eastbourne, 1883 (Entomologist, vol. xvi, p. 135).

Glanvilles Wootton :
December, 1901.

COLEOPHORA MILVIPENNIS, ZELLER, NEW TO BRITAIN.

BY C. G. BARRETT, F.E.S.

I have been much interested lately in examining a lovely little *Coleophora* reared by my old friend Mr. W. C. Boyd. He was shooting near Danbury, Essex, in October, 1900, when his attention was claimed by very white blotched mines in leaves of blackthorn (*Prunus spinosa*). After some search two cases were secured, and were afterwards sleeved out in his garden, upon plum, for the winter. They were then not full grown, but fed up in the following spring, and produced one moth in 1901. This moth agrees in size, and in part in colour, so nearly with *C. badiipennella*, that it remained without further examination until now. In the collection of the late Professor Frey, at South Kensington, I find three specimens of *C. milvipennis*, Zell., which agree in all respects with this example with the utmost accuracy. The case also agrees, but with this one discrepancy. Prof. Frey's cases are from birch, and birch is given as the food plant by

Zeller, and by Sorhagen, A. Schmid, and Hofmann, though Frey himself says, in 1856, that it feeds on deciduous trees, and in 1880 mentions birch only. It is a remarkably straight, slender and pointed case; and I feel no doubt whatever that those found by Mr. Boyd are of the same species.

This little moth is of the size of *C. badiipennella*, expanse about 4 lines (8 mm.), antennæ rather long, beautifully annulated with brown and clear white; fore-wings pale yellow at the base, the colour regularly and softly shading darker outward until it becomes of a rich ochreous, or pale golden-fulvous, in the hinder area; without markings, and having the costa of the colour of the rest of the wing; cilia similar. Hind-wings glossy, pale grey, with long silvery-white cilia; abdomen dark brown; legs long, pale brown.

This is an interesting addition to the British fauna.

Tremont, Peckham Rye, S.E.:

March 14th, 1902.

PSEUDOPHLÆUS WALTII, H.-S., A SPECIES NEW TO THE
BRITISH FAUNA, &c.,

BY H. J. THOULESS.

On August 5th last, at West Walton, Norfolk, while searching at the roots of grass in a very dry place, I obtained a Coreid Bug, which did not exactly answer the description of any of our species. I therefore sent it to Mr. Edward Saunders, and he has been kind enough to name it for me as *Pseudophlæus Waltii*, H.-S., a well-known Continental species, but not previously recorded from Britain. He points out that the difference in the third antennal joint, which widens and is black at the apex, will at once distinguish it from *P. Fallenii*, also that the scutellum is carinated only at the apex, and the antennary tubercles are pointed instead of obtuse as in *Fallenii*.

The patch of dry grass mentioned above produced, in addition to the *Pseudophlæus Waltii*, the following bugs, which may be worth recording: a dead and broken specimen of *Coreus denticulatus*, a species only once before recorded from Norfolk, *Berytus crassipes* and *B. minor*, *Aphanus lynceus*, *Coranus subapterus* and *Nabis boops*.

The following species also, have recently occurred in my garden at Norwich, *Podops inuncta*, *Heterogaster urticae* and *Therapha hyoscyami*. This last is a very interesting capture, as it was taken in Norfolk by Paget many years ago, but has since been recorded in this country from the South Western counties only.

"Corfe," College Road, Norwich:

March 5th, 1902.

NEW CORSICAN AND FRENCH MICRO-LEPIDOPTERA.

BY THE RT. HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S., &c.

(Continued from Vol XXXVII, p. 184).

335. HOLCOPOGON, Stgr.

n. syn. = CYRNIA, Wlsm.

HOLCOPOGON, Stgr., Hor. Soc. Ent. Ross., XV, 330—1 (1879); Stgr. and Rbl., Cat. Lp. Pal., II, 160, No. 335 (1901). CYRNIA, Wlsm., Ent. Mo. Mag., XXXVI, 218—9 (1900); Stgr. and Rbl., Cat. Lp. Pal., II, 264, No. 341^{bis} (1901).

2979. HOLCOPOGON BUBULCELLUS, Stgr.

n. syn. = 3011^{bis} *barbata*, Wlsm.

Hypsolophus bubulcellus, Stgr., Stett. Ent. Ztg., XX, 245, No. 96 (1859). *Ypsolophus pulverellus*, Cnst., Ann. Soc. Ent. Fr., XXXIV (4 s., V: 1865), 191—2, Pl. II, 5 (1865). *Holcopogon bubulcella*, Stgr., Hor. Soc. Ent. Ross., XV, 330—1 (1879); *H. bubulcellus*, Stgr. and Rbl., Cat. Lp. Pal., II, 160, No. 2979 (1901). *Cyrnia barbata*, Wlsm., Ent. Mo. Mag., XXXVI, 219, No. 2177 (2) (1900); Stgr. and Rbl., Cat. Lp. Pal., II, 264, No. 3011^{bis} (1901).

I regret to find that by an unfortunate error the description of *Cyrnia barbata*, Wlsm., MS., has appeared in print. These descriptions were intended to be suppressed, but having slipped in among those of other Corsican species sent for publication, my attention was not called to the oversight until my return from abroad. The genus was not regarded as sufficiently distinct from *Holcopogon*, Stgr., differing only in my two specimens having veins 3 and 4 of the hindwings connate, whereas they are normally separate in *Holcopogon helveolellus*, Stgr. The suspicion that *barbata* was identical with *bubulcellus*, Stgr., which I had not then recognised, is now confirmed.

(To be continued).

NOTE ON *OSMIA MANICATA*, MORICE, WITH DESCRIPTION OF THE FEMALE.

BY THE REV. F. D. MORICE, M.A., F.E.S.

The *Osmia*, whose ♂ I described in Trans. Ent. Soc., London, 1901, Part II, under the name of *manicata* appears to be widely distributed over the Mediterranean regions. I have now taken its ♂♂ in Algeria and South Italy (Taranto), both sexes in Corfu, Zante, West and East Greece (Olympia, Attica), and ♀♀ apparently belonging to the same species at Smyrna.

I am sure as to the ♀♀ from Greece, one of them having been taken actually *in copulâ*. Those from Smyrna, so far as I can see, are exactly similar.

In all, I have eight specimens, which I should call *manicata* ♀. They are most vexatiously like *adunca*, Pz.—in fact, after a prolonged and minute comparison of the two species, the only distinguishing ♀ characters I can find are the following—

Manicata is larger (14—17 mill. long, and at least 4 mill. wide); its hind calcaria are completely red; there is a more clearly defined rugose triangle at the extreme base of the propodeum; its general style of puncturation is a little stronger than that of *adunca*—not so shallow, and in some places closer; especially it may be noticed that on the mesonotum near the tegulæ the punctures in *adunca* become almost remote, and the surface in consequence shines a little, whereas in *manicata* the whole mesonotum is covered with close reticulate punctures, making it look quite dull: also in *manicata* the tegulæ themselves show pretty distinct fine punctures almost all over, while in *adunca* the greater part of their surface is impunctate.

Neither in the clypeus, the antennæ, the legs, the wings, nor even in the last ventral segment (usually so helpful in discriminating ♀♀ of this group) can I find any substantial difference between *adunca* and *manicata*. The pilosity, fimbriation of the abdominal segments, etc., seems quite identical, and both species have the shining, comparatively naked abdominal surface, by which *adunca* is so easily distinguished from *cæmentaria*, *Lepelletieri*, etc.

The characters given above are, it must be owned, not altogether satisfactory, and if the ♂♂ differed no more than the ♀♀, one might well hesitate as to separating the two as distinct species. But the 6th ventral segment in *manicata* ♂ is so utterly unlike that in *adunca*, that it is really impossible to unite them. I find its peculiarities absolutely constant in the numerous specimens which I have now examined, and have nothing to add to or subtract from the account I gave of them in the Transactions (*l. c.*).

There can be little doubt that many specimens of *manicata* occur in South-European collections under the name of *adunca*. It is curious that in 1901 Dr. Schmiedeknecht and myself, while collecting in Greece and the Ionian Islands, found no specimens of *adunca* at all!—all the *Osmiæ* of that group that we obtained were either *manicata* or *pallicornis*, Friese (= *difformis*, Ducke, nec Perez). But as soon as I crossed to South Italy, I found *adunca* everywhere, while *manicata* only re-appeared at Taranto, and *pallicornis* was nowhere to be found.

Brunswick, Woking:

February, 1902.

Macropis labiata, Pz., and *fulvipes*, F.—In Friese's new volume (VI) of "Apidæ Europææ," the above insects are separated by differences of colour, punctuation, etc., but the author expresses some doubt whether they ought really to be considered as distinct species.

Having examined their ♂ genitalia with this question in view, I find a difference which seems to me quite strong enough to be specific. In both, the stipes has a long bilobed apical process or "lacinia," but the outer of the two lobes of this process is shaped very differently in the two species. In *fulvipes* it has a simple subtriangular form, with nearly straight, gently converging sides and a rounded apex. But in *labiata* it is so strongly and abruptly dilated inwards at the apex as to be almost unciform. The difference is quite apparent with a hand-lens of low power; as viewed under the compound microscope it is more than apparent—striking! (The inner lobes differ also somewhat—that in *labiata* being wider. But this character is by no means so noticeable as that given above, so I do not dwell upon it).

The species are undoubtedly very closely allied; but I think we cannot do wrong to keep them apart, according to our present ideas as to what constitutes a species.

My specimens of *Macropis* are mostly English or Swiss. The English ones are all *labiata*; the Swiss comprise both species—*labiata* from Sierre, and *fulvipes* from the Bois des Frères, near Geneva. Both occurred on *Lysimachia*, and I never thought I had more than one species in my collection, till I tested it by Friese's synoptic tables in the new volume.—F. D. MORICE, Brunswick, Woking: February, 1902.

Hedychrum rutilans, Dhb., and *Hedychrum fervidum*, Smith, nec F.—Professor Poulton has lately been good enough to send me for examination the whole of the British Chryside in the "Hope" (Oxford) Collection. I was rather disappointed to find that it contained nothing new to our British List; but there was one insect which, had I seen it a few months earlier, would have been so.

This was a ♀ of *Hedychrum rutilans*, Dhb., the species of which I recorded the first British capture known to me (at Lyndhurst, by Miss Ethel Chawner), in the Ent. Mo. Mag. of last October (1901).

The insect bore two old labels, one naming it "*Hedychrum fervidum*," the other giving as locality and captor "Wandsworth, W. S. (sic) Saunders." This was probably due to a slip of the pen, W. W. Saunders being no doubt intended. The label was not in Mr. Saunders's handwriting, and his son (Mr. E. Saunders) who has seen the specimen thinks that the pin was not one likely to have been used by his father—still, of course it may have been re-pinned.

If it was really received from Mr. Wilson Saunders a curious result follows.

So far as I know, four British collections only (the British Museum, the Hope, Dr. Mason's, and my own) contain each a single specimen professing to represent the insect described by Shuckard, Smith, &c., under the name "*Hedychrum fervidum*." Of these, three are really varieties (all different) of *Holopyga gloriosa*, F., while the fourth is a *Hedychrum rutilans*. Not one of them is the true "*fervidum*," or rather, "*fervida*," viz., *Holopyga fervida*, F., which apparently does not occur in this country at all. All four specimens can be traced probably, and my own, certainly, to Mr. Wilson Saunders's collection, and he alone is recorded (vide Shuckard) as having captured "*Hedychrum fervidum*" in this country.

Mr. Marshall's Catalogue gives "*rutilans*" as a synonym for Smith's "*fervidum*," as I mentioned in my first paper in the Ent. Mo. Mag. on British Chrysids. I then supposed this to be a simple mistake, since all the then claimants to the name "*fervidum*" belonged to *Holopyga gloriosa*, with which "*rutilans*," a true *Hedychrum*, had no sort of connection, nor even resemblance. But, if he was going by the Hope collection specimen, his identification was perfectly correct, as far as that example was concerned, though not so as to the other insects described as *fervidum* by British authors.

Since there is now no doubt that *rutilans* is a real British species and still occurs here, it is to be hoped that *gloriosa* may yet be rediscovered, and the shadow of doubt that still remains on the subject of its claim to be considered a native be removed.—*Id.* : *March 8th*, 1902.

Sirex gigas, L., at Hitchin (Herts) and Merton (Norfolk).—This species used to be brought to me occasionally at Hitchin, but the specimens were almost certainly imported. The late Frank Latchmore observed that those which occurred in his shop were bred from bundles of fire-wood. I once dug a large number of males out of a fir-trunk at Merton, and have occasionally seen the female on the wing, but there is a large timber yard at Brandon, and foreign fire-wood is sold everywhere. Foreign timber and fire-wood undoubtedly introduce this species every year, and probably the majority of specimens observed are not actually British. If the species has any real claim to be regarded as autochthonous, specimens with an entirely British ancestry must form a very small minority.

Sirex juvenus, L., at Hitchin (Herts).—This species was decidedly rare at Hitchin; one of my specimens was taken in his shop by the late Frank Latchmore—this was undoubtedly introduced in the same way as *S. gigas*, and I do not regard any of my specimens as truly British.—J. HARTLEY DURBANT, Merton Hall : *February 26th*, 1902.

Notes on Diptera in the New Forest during 1901.—From my own experience the season was not a good one, for although the weather, at the time of my visits, was favourable, *Diptera* were scarce, and the strong winds which generally prevailed made collecting them difficult. The season was also erratic, as what Spring there was came even later than in 1900, but by the end of May it was forwarder than usual, and only became normal about August, by which time many species I expected to find, were apparently over. Quality, however, somewhat made up for quantity, and in addition to the four *Pilota anthracina*, Mg., two *Pocota apiformis*, Schrk., and three *Lophosia fasciata*, Mg., already reported, I took one *Leptomorphus Walkeri*, Curt., two *Platyrura atrata*, F.?, one *P. fasciata*, Ltr., one *Bibio clavipes*, Mg., one *Ptychoptera contaminata*, L., three *Asilus crabroniformis*, L., *Empis nigrifarsis*, Mg. (com.), six *Platypera hirticeps*, Verr. (all ♀♀), *Platycheirus discimanus*, Lw., (common on sallows), four *Pyrophæna granditarsa* Forst., one *Crysochlamys ruficornis*, F., two *Callicera ænea*, F., one *Zodion cinereum*, F., four *Oncomyia atra*, F., three *Stomphastica flava*, Mg., one *Neottiophilum præustum*, Mg., *Urophora quadrifasciata*, Mg. (common on *Centaurea nigra*), one *Phora abdominalis*, Flin., and Mr. C. Morley gave me a specimen of the rare *Asciura rotundiventris*, Flin., taken on *Angelica sylvestris*

at Matley Bog. Although I arrived at Lyndhurst about the usual time for *Mallota cimbiciformis* Fln., and *Callicera aenea*, F., I did not see either, and a few days later on meeting Dr. Sharp he told me they were over, as he had previously taken both, but had not seen any more about for quite a week. The two *C. aenea* mentioned were quite late specimens, and showed signs of having been about for some time, one being taken on 8th September, which I think is the latest date yet reported. To my surprise, not a single *Ceroplastus tipuloides*, F., and only one *Spilogaster uliginosa*, Fln., turned up at Fern Cottage, both species having been commoner there than usual the previous year.—F. C. ADAMS, 30, Ashley Gardens. S.W. : *March*, 1902.

The Reports to the Malaria Committee of the Royal Society.—The sixth series of these Reports, issued early in March, is of great importance from an entomological, as well as from a medical, point of view. The Reports are from Drs. Stephens and Christophers, the medical officers who are investigating the subject in Bengal, and deal principally with the power, or otherwise, of different species of *Anopheles* to transmit malarial fever. The district they had under consideration extends from the Bay of Bengal to the "Duars," a narrow strip devoted to tea cultivation, at the foot of the Himalayas. They found five species of *Anopheles* in this district, but only one of them, *A. Christophersi*, Theobald, proved of importance as an infecting agent, and this is almost confined to the "Duars." *A. Rossi*, Giles, which swarms in Calcutta, proved there of negative importance; specimens fed purposely upon malarial patients failed absolutely to produce within them the malarial organisms, whereas of *A. Christophersi* in the "Duars" from 40 to 72 per cent. of individuals were infected, and thus able to transmit the disease. In the plains of Bengal *A. Rossi* does not seem quite so immune, as from 7 to 12 per cent. were infected. The fever cases at Calcutta would seem to be mainly importations. No. 456 (March 7th, 1902) of the "Proceedings of the Royal Society" contains a systematic monographic list of the *Culicidæ* of India, by Mr. F. V. Theobald, M.A., F.E.S. The author makes the significant suggestion that whereas it is only certain species of *Anopheles* that carry malaria, it may be that certain species of *Culex* may do so likewise.—EDS.

Hystodesia vagans, Fln., confirmed as British.—In Mr. Verrall's New List of *Diptera* this species is omitted, and in the January No. (*ante* p. 8) of this Magazine he includes it with seven other species unknown to him. This is an oversight on Mr. Verrall's part, as I submitted specimens to him some years ago. It is a perfectly well-known species to me, as it is represented in my cabinet by three males and eight females, besides others given away. Mr. C. J. Wainwright also has some half dozen in his collection. All these were taken in Sutton Park, Warwickshire. Mr. Verrall now admits the validity of the species.—RALPH C. BRADLEY, Moseley, Birmingham : *March*, 1902.

Lopus flavomarginatus, Don., in Blean Wood, and *Paragus bicolor* at St. Margaret's Bay.—I find that on the 24th of June, 1900, I captured two specimens of the apparently rare bug, *Lopus flavomarginatus*, Don. in the Blean Woods. They

were taken on broom. Last year, on August 12th, I took at St. Margaret's Bay, under the Cliff, a specimen of *Paragus bicolor*, a Syrphid fly, which appears, from Mr. Verrall's book, hitherto to have been known as British from very few examples, but which I feel sure was abundant at St. Margaret's Bay. The porrected antennæ, which are well represented by the illustration in Mr. Verrall's book, seem remarkable in the group of *Syrphidæ* in which *Paragus* occurs.—ARTHUR J. CHITTY, 27, Hereford Square, S.W. : *March 12th*, 1902.

Icerya seychellarum (Westwood), in *S. Africa*.—Mr. C. Fuller has sent me examples of this species (new to *S. Africa*) on rose and *Ficus*, collected in Natal. It also occurs on native plants, and is more likely to be a native of *S. Africa* than of the Seychelles or Mauritius. Mr. Pergande, of Washington, has also examined specimens, and agrees with me that the Coccid is true *I. seychellarum*. It is a pretty thing, with yellow and white secretion, and radiating glassy filaments. The insect from Lagos, described by me as a subspecies of *I. seychellarum*, is clearly a valid species (*Icerya albolutea*).—T. D. A. COCKERELL, E. Las Vegas, N. Mexico : *March*, 1902.

Fiorinia Sulcii, Newstead, in *France*.—Dr. P. Marchal has just sent me this species, collected in Dordogne, April 19th, 1901, on *Pinus*. It is, so far as I know, new to the fauna of France.*—ID.

Bamboo Coccids in Algeria.—Dr. P. Marchal sends me some Coccids crowded on *Bambusa spinosa*, marked "Jardin d'Essai du Hamma, Alger," January 26th, 1901. They consist of two species, *Odonaspis secretus* (Ckll.) var *Greenii*, Ckll., and *Mytilaspis bambusicola*, Ckll. The first was described from Ceylon, the other from Brazil!—ID.

Strachia picta probably imported with fruit.—On November 30th last, Mr. A. Mason, of Brundall, sent me a very fine red and black bug, which he took crawling in his dining room, near some plates of dessert, consisting of bananas, grapes, &c. It is similar to *Strachia festiva*, but much larger. Mr. Edward Saunders has again assisted me, and writes as follows:—"It is *Strachia* sp., very like *picta*, and possibly a form of that species. Under the circumstances, I should say it was probably introduced from the Canaries. It is not a species likely to occur here." The insect was alive and quite active when it came into my possession.—H. J. THOULESS "Corfe," College Road, Norwich : *March 5th*, 1902.

Salda C-album, Fieb., and *vestita*, D. and S.—Among a large number of *Salda C-album* sent to me for examination by Mr. Geo. B. Routledge, were three or four specimens of *vestita*, D. and S. Upon enquiry I find that they were all taken at one spot on the banks of the Irthing, near Edmond Castle. *Salda saltatoria* did not occur at all, the only other species being *scotica*, Curt.

I have before received *C-album* and *vestita* from Mr. Routledge taken together

* Also new to France is *Diaspis zamia*, Morgan, found by Dr. Marchal on *Cycas* in a hothouse; but this is not a native species.

elsewhere, and think these facts are a very strong confirmation of Dr. Reuter's opinion that *vestita* is the developed form of *C-album*. — F. A. NEWBERRY, 12, Churchill Road, N.W. : *March 14th*, 1902.

[The above note contains very strong evidence in favour of *Salda vestita* being the developed form of *C-album*. I have always been against this association, on account of the very different appearance of the elytra in the two forms ; in *vestita* these are dull all over, and there is an absence of the velvety black patches observable in *C-album*, as well as of the whiter markings, and notably of the little round white spot near the apex of the corium ; the sides of the pronotum are also more rounded. I feel, however, that Dr. Reuter's views have turned out correct, and that in future *vestita* should be treated as the macropterous form of *C-album* in our lists.— EDWARD SAUNDERS.]

A few Odonata from the Chamonix Valley.—As very little has been published concerning the Dragon-flies of the Mont Blanc district, it may be of use to enumerate six species taken at Chamonix (over 3200 feet) by my friend Mr. R. W. Lloyd between July 15th to 27th, 1901 :—

Sympetrum striolatum, Chp. ; *Orthetrum brunneum*, Fonsc., apparently very common ; *Æsch. cyanea*, Müll. ; *Calopteryx splendens*, Harris ; *Pyrrhosoma nymphula*, Sulz. ; *Agrion mercuriale*, Chp. — R. McLACHLAN, Lewisham, London : *February 23rd*, 1902.

Sphinx convolvuli, L., at Merton (Norfolk), 1901.—On September 20th, 1901, Lord Walsingham's gardener brought me a specimen of *convolvuli* which he had caught in a greenhouse in the garden here. Although I have never taken this species myself, I have not regarded it as a rare species—boys used to bring me specimens at Hitchin, and Lord Walsingham and myself saw several specimens flying round a high electric light at the Colonial Exhibition at South Kensington.— JOHN HARTLEY DURRANT, Merton Hall, Thetford : *February 25th*, 1902.

Papilio machaon, L., at Ely in 1881.—On June 16th, 1881, I saw a specimen of *machaon* at Ely, near the stone wall in the meadow beyond the Vineyard. It flew over the wall, much to my disgust, and did not return, although I waited for it for hours. I need hardly add that this was the *first* time I had seen a real live Swallow-tail ! I am aware that the Rev. G. H. Raynor tried to establish *machaon* at the Rosewell Pits, Ely, in 1881, having assisted him in collecting ova at Wicken, but my Swallow-tail had no connection with these ova, the earliest of which, according to my notes, were collected June 24th, 1881.—ID. : *February 25th*, 1902.

The hibernating stage of Coremia didymata, L.—In part lxxxviii of Mr. Barrett's "*Lepidoptera of the British Islands*," just to hand to-day, the author remarks (p. 177) that he "can obtain no information as to the young state of this larva, but it must surely hatch from the egg in autumn—probably August," &c. I am able to supply the missing information : ova laid on August 10th, 1899, hatched on February 26th, 1900, and I have at the present time apparently healthy hibernating ova which were deposited on July 21st, 1901.—LOUIS B. PROUT, 246, Richmond Road, N.E. : *March 7th*, 1902.

*A Correction — Blaps similis, Ltr., = Blaps *mortisaga, Drnt., Ent. Mo. Mag., XXI, 112 (1884) nec. L.*—The record of the occurrence of *Blaps mortisaga* at Hitchin, was founded on two specimens brought to me alive July 22nd, 1884. These appeared to differ from *B. similis*, which I had taken freely at Pirton, in the greater extension of the ends of the elytra, and were determined for me by a friend as *B. mortisaga*. This identification was probably more or less casual, but I was younger then, and accepted it without question. I did not become acquainted with the error of determination until some years later. *Blaps mortisaga, L.*, does not occur at Hitchin, Herts.—J. HARTLEY DURRANT, Merton Hall : Feb. 27th, 1902.

Cryptophilus integer, Heer, in London.—I have long had a specimen of this inconspicuous Clavicorn beetle in my collection, brought me with *Mezium* and other insects from a London warehouse. It is very like a small, pallid *Cryptophagus*, with the sides of the thorax acutely margined, but not toothed, and the entire upper surface delicately punctured and pubescent, the punctures on the elytra subserially arranged. As the insect is likely to become spread by commerce, it is worth while calling attention to its occurrence alive in London, though the species cannot, of course, be introduced into the British list. It has been recorded from many localities in Europe, including Switzerland, the Tyrol, the Balearic Islands, &c., and I have specimens sent me by Mr. J. J. Walker, from Corfu, Cephalonia, and Malta. In the last European Catalogue the genus is referred to the *Telmatophilidæ*.—G. C. CHAMPION, Horsell, Woking : March 1st, 1902.

Note on "Lathrobium atripalpe."—Mr. Thompson has just sent me for verification a specimen of a *Lathrobium* from High Moors, Yorkshire, that agrees with the individual on which I introduced *L. atripalpe*, Scriba, as a British species. I have always felt doubt as to whether the insect was really what Scriba had in view, and I see that Ganglbauer considers Scriba's *L. atripalpe* to be a variety of *L. terminatum*. This my "*atripalpe*" certainly is not, and it seems possible that it is an undescribed species. I notice that in one of my examples the elytra are quite black, but in another, and in Mr. Thompson's specimen, they are piceous—giving rise to the suspicion that the insect may be a dark form of some species with red elytra. The insect is at present rare to an extent that is quite surprising, and it would be well to wait for more information before attempting a final conclusion on the matter, though the existence of an unnamed species in the British list seems rather an anomaly now-a-days.—D. SHARP, Cambridge : Feb. 19th, 1902.

Carbolic Acid as a preventive of mildew, and preserver of collections.—I have had experience of the use of this substance in collections of insects, extending now over 25 years. During that period I have several times received applications from residents in the tropics requesting me to inform them how they could protect their collections from destruction. I have always recommended carbolic acid, and it has always proved successful. I have tried several other methods I have seen recommended, and though some of them are more or less useful, no one of them is at all equal to Carbolic Acid. I find the glacial acid is not so good as the impure acid. Calvert's No. 5 answers all the purposes best, and is not dear.

The mode of application. Get small Turkey sponges, with as few large passages in them as can be found. Cut them into cubes, or oblongs, each about half a cubic inch in size, and pin each cube into the box by means of two long and strong pins. Take care that the sponge is isolated from everything except the pins. Then apply the carbolic acid to the sponge by means of an ordinary pipette, putting as much on the sponge as it will hold without risk of dripping.

The carbolic has no injurious influence on the colour of the insects, so long as it does not actually touch them. It is, I think, advantageous as regards greasing, and it is as efficacious against insect destroyers as it is against mould.

Various devices have been tried as to placing the carbolic in small vessels. But none of these have proved successful. The sponge method is the best. The drawback to it is the risk of dripping of the carbolic from the sponge. This may be rendered unimportant by using the lid of a small cardbox as a saucer. The pins carrying the sponge also carry this saucer. A small interval should separate the sponge from the saucer.

I may add that if collections are infested with Insects, it is best before using the carbolic acid, to kill the pests by some agent. Benzine is the best. This should be put on the sponges in the same way as the carbolic. The box should then be closed and left for a fortnight, when another application of benzine may be made, if the boxes are badly infested. If this is used, the carbolic may be put on the sponges three or four days after the second application of the benzine.

With regard to the question how long the carbolic acid acts as a preservative, I may say that this depends on a number of details. When it is first used in a collection, I advise a second application to be made in about three months. If the collection has been in a very bad state, it will be some time before the destroyers completely disappear, and consequently the frequency of renewal must depend on this, on the climate, on the nature of the boxes, etc. But after the carbolic has been renewed two or three times, the intervals between its application may be extended to one, two or three years. Although I have not experimented much with it, I am disposed to entertain the opinion that the vapour of carbolic acid may be a valuable adjunct in rearing insects in confinement, especially when they have to be kept for some time. They are, in such cases, frequently killed by mould. If galls and such objects are placed in vessels with some of the crystalline carbolic acid, so that none of the acid touches the galls, I have found the insects emerge very freely. If the insects are very small, it is desirable to put in the receptacle a small vessel containing some water. The reason for this being that the carbolic acid seems to exercise a peculiar influence in keeping the air very dry.—*Id.*, Cambridge: *March 1st*, 1902.

Reviews.

THE VICTORIA HISTORY OF THE COUNTIES OF ENGLAND: A HISTORY OF SURREY. INSECTA, edited by HERBERT GOSS, F.L.S., &c., pp. 102, folio. London: A. Constable and Co., Limited. 1902.

In this Magazine for November, 1900, we called attention to the publication of the first of the Counties, viz., Hampshire, and gave a brief notice of the scope of the intended work and its difficulties. Surrey is now before us, and the *Insecta*

occupy over 100 pages. No doubt Surrey is one of the most favoured, as well as one of the best-worked counties, but if this occupation of space by the Insecta is to be continued at the same rate we think there will be a revolution at head-quarters; and yet whole and important groups (*e. g.*, parasitic *Hymenoptera*) are omitted altogether. All concerned seem to have done their work well; at any rate, as well as is possible for a task imposed at very short notice. All is very unequal (as was remarked for Hampshire), and we do not see how this is to be avoided. Much of it is in what may be called "narrative" form; much (such as *Hymenoptera*, *Coleoptera*, *Micro-Lepidoptera*, &c.) consisting of only lists with localities. There have been many isolated county catalogues of certain Orders of insects; never before has the subject been handled in so comprehensive a manner.

GENERA INSECTORUM: First fascicule (*Coleoptera*), by Dr. M. RÉGIMBART. Pp. 12, and 1 plate. 4to. Bruxelles: P. Wytman. 1902.

The first fascicule of the *Coleoptera* (presumably of Part 1) of this work is devoted to the *Gyrinidæ*, which the author divided into three tribes and nine genera, the characters of the latter being shown on a beautifully drawn plate. After each genus a list of the species and their habitat is given, 356 being the total number for the whole family, and out of these 81 belong to *Orectochilus*, and 77 to *Gyrinus*. If all the families of the Insecta were as well defined as the *Gyrinidæ*, and each had a specialist at work on it, there would be some hope of this gigantic undertaking being completed in the course of time.—G. C. C.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *February 17th*, 1902.—ANNUAL MEETING.—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

The Thirteenth Annual Report of the Council was read, and the Treasurer's Report presented, showing a slight balance in the Society's favour.

The following Officers were elected for the ensuing year:—President, Mr. G. H. Kenrick, F.E.S.; Vice-President, Mr. G. T. Bethune-Baker, F.L.S., F.E.S.; Treasurer, Mr. R. C. Bradley; Librarian, Mr. A. H. Martineau, F.E.S.; and Secretary, Mr. C. J. Wainwright, F.E.S. The following were also elected to the Council: Messrs. H. Willoughby Ellis, F.E.S., J. T. Fountain, W. Harrison, and G. W. Wynn.

Mr. A. Imms exhibited, by means of a lantern, a series of microscopic preparations of the *Collembola*, including specimens of typical species and sections, &c. Mr. J. T. Fountain, a series of *Selenia bilunaria*, Esp. (*illunaria*, Hb.), of different broods, including a series bred, June to August, of var. *juliaria*, Haw., and others bred, November to March, all of the spring form. Mr. A. H. Martineau, *Hymenoptera* taken at Budleigh Salterton, S. Devon, at beginning of August last year, including *Andrena pilipes*, F., and *A. thoracica*, F., both from bramble blooms; *Astatus boops*, Schr., taken at blossoms of gorse; *Andrena denticulata*, Kirby, *Nomada fucata*, Panz., *Dasypoda hirtipes*, Latr., *Hedychridium roseum*, Rossi, the parasite of *Astatus boops*, and *Trypoxylon figulus*, Smith, its cells were found in sand instead of the more usual wooden posts.—COLBRAN J. WAINWRIGHT, Hon. Sec.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
ANNUAL MEETING.—*January 9th*, 1902.—Mr. F. NOAD CLARK, Vice-President, in the Chair.

The Twenty-Ninth Annual Report was read, and shewed that the Society was in a very satisfactory condition, both in membership and finances, and had carried on with much success its educational and scientific work. The present number of members is 174, and the Balance Sheet shewed a very fair balance, with no liabilities.

The following is a list of the Officers and Council elected for the ensuing year :—
President, F. Noad Clark ; Vice-Presidents, H. S. Fremlin, M.R.C.S., F.E.S., and E. Step, F.L.S. ; Treasurer, T. W. Hall, F.E.S. ; Librarian, H. A. Sauzé ; Curator, W. West ; Hon. Secretaries, Stanley Edwards, F.L.S., F.E.S., and Hy. J. Turner, F.E.S. ; Council, W. J. Ashdown, J. H. Carpenter, F.E.S., T. A. Chapman, M.D., F.E.S., A. Harrison, F.C.S., F.L.S., W. J. Lucas, B.A., F.E.S., H. Main, B.Sc., F.E.S., and J. W. Tutt, F.E.S.

There was no Address from the retiring President, owing to his having met with a very serious accident. A vote of sincere condolence and of hearty best wishes for his speedy recovery was unanimously passed.

Mr. R. Adkin exhibited a long series of *Acidalia aversata*, and read notes on their life-history and variation. Mr. Garrett, a living specimen of *Dasychira pudibunda*, which had just emerged in the open. Dr. Chapman, forms illustrative of the geographical races in Spain and Switzerland of the butterflies *Polyommatus Corydon*, *Lycæna Damon*, and *L. Hylas*.

February 13th, 1902.—Mr. F. NOAD CLARK, President, in the Chair.

Mr. South exhibited a specimen of *Cydimon (Urania) leilus*, from St. Kitts, one of the Leeward group of the West Indies. It is a common species along the northern coast of S. America, and in Trinidad, but has not hitherto been taken in this island. Mr. McArthur, some specimens of *Eupæcilia gilricomana*, taken forty years ago by Mr. Standish, and stated that the species had not since been obtained in this country. Mr. H. Moore, an exceedingly fine specimen of the Orthopteron *Lanar imperialis*, from Sylhet, in N. India. Dr. Chapman, specimens of *Hypotia corticalis*, from the Riviera, a species having some of the characters of the genera *Pyrallinus* and *Phycitinus*, and for which he had proposed a new genus. Rev. F. P. Perry, a large number of *Coleoptera* from the Transvaal and Orange Colony, taken by himself during a short residence in S. Africa.

February 27th, 1902.—The President in the Chair.

Mr. South exhibited a specimen of *Macaria liturata* from Delamere Forest. It was a very dark variety, and had recently been described as var. *nigro-fulvata* ; it was apparently an unknown form on the continent. Mr. McArthur, an example of *Agrotis segetum*, having a narrow, very dark, marginal band on each of the hind-wings, the white ground colour and fringes making it of a very conspicuous character. Mr. Edwards, an unusually large and perfect nest of *Vespa vulgaris*, obtained near Rochester in a hollow tree. Dr. Chapman, specimens of *Crinopteryx familiella*, bred from larvæ ; it belonged to the lower section of the *Adelidæ*, and lived in cases like the *Coleophoræ*, to which it had no structural relation whatever. Mr. R. Adkin, long bred series of *Acidalia marginepunctata*, and read a paper on them, entitled,

"A Life-cycle of *Aoidalia marginepunctata*." A discussion ensued, when it was pointed out that the genus certainly required subdivision, both on account of diversity of structure and distinction of habit.—HY. TURNER, *Hon. Sec.*

ENTOMOLOGICAL SOCIETY OF LONDON: *February 5th*, 1902.—The Rev. Canon W. W. FOWLER, M.A., F.L.S., President, in the Chair.

Dr. Norman Joy, of Bradfield, near Reading, was elected a Fellow of the Society.

Professor Poulton exhibited with lantern a series of slides belonging to Professor Meldola, made from actual specimens by the three-colour process, illustrative of mimicry in British and exotic *Lepidoptera* and *Hymenoptera*. He also exhibited the several specimens from which the lantern-slides had been prepared. Mr. C. G. Barrett, a series of the perfect insect of *Glottula fusca*, Hbn., together with ears of maize (locally called mealies), showing the damage done by the well-grown larva of the species, which lives in the first place in the stem, eating the pith from the ground, and afterwards attacking the cobs, and eating from the inside into the bases of the unripe grains which then change colour and shrivel up. He also exhibited: *Gynaniza maia*, ♂, Walk., and a drawing of the larva; *Nudaurelia menippe*, ♂, Feld., and drawing of larvæ; *Bombycomorpha bifascia*, Hbn., circle of eggs, cocoons and figure of larva; *Phissana flava*, Feld., food, cocoon and figure of larva; *Gonometa postica*, ♂ and ♀, Walk., cocoon (poisonous), and ♂ and ♀ larva figures; *Henucha smilax*, ♂ and ♀, Feld., pupa, cocoon, figures of larva, and an enlarged segment to show markings; *Metarotia rufescens*, Walk., and figure of larva; *Tæniopyga sylvana*, Walk., and figures of larva; *Rigema ornata*, Walk., and figures of larva—all the foregoing specimens and figures being received from Miss Frances Barrett, Buntingville, Transkei, South Africa. Mr. W. L. Distant, two specimens of *Coleoptera* which had reached him alive from the Transvaal—one *Anthia thoracica*, Thunb., now deceased, the other *Brachycerus granosus*, Gyll., still living. These insects had been sent by Mr. Robert Service, of Dumfries, who received them from Sergt. Peter Dunn, of the volunteer company of the Scottish Borderers. The genus *Anthia* extends to the Southern Palearctic region, and there seems little doubt that these species could be easily acclimatized there. All they require at home is the run of a good palm or orchid-house. Mr. R. Adkin, a series of *Aoidalia aversata*. The parent moth (a banded female, the male parent not being known) was taken at Lewisham in June, 1900. Of the resulting larvæ about one half fed-up rapidly, and produced imagines in the autumn of the same year—a very unusual circumstance; the remainder hibernated and produced imagines in June of the following year, thus occupying the normal time in completing their metamorphoses. The proportion of individuals following the female parent in the two portions of the brood was almost equal, the percentages being approximately 53 banded in the autumnal emergence as against 53 in the spring, but in point of sex the disparity was great, over 65% of the autumn moths being males as against fully 72% females in the spring portion. Mr. G. C. Champion, long series of *Leptura stragulata* Germ., and *Strangalia pubescens*, Fabr., from the pine-forests of Aragon and Castile, showing the great variation in colour of the two species in these districts, whereas the allied form,

occurring in the same places, viz., *L. rubra*, Linn., *L. distigma*, Charp., *L. unipunctata*, Fabr., and *L. sanguinolenta*, Linn., were perfectly constant; also *Dermestes aurichalceus*. Küst., which he and Dr. Chapman had found everywhere in abundance in the old nests of the processionary-moth (*Thaumetopæa pityocampa*, Schill.) on the pines in these forests. Dr. T. A. Chapman exhibited in illustration of his paper "On a new subfamily of *Pyralidæ*," living larvæ of *Hypotia corticalis*, Schiff., as well as preserved larvæ, pupa-cases, imagines and prepared wings to show the neuration of that species. Mr. Edward Meyrick communicated descriptions of new Australasian *Lepidoptera*." Mr. W. F. Kirby communicated a "Report on a Collection of African *Locustidæ*, chiefly from the Transvaal," made by Mr. W. L. Distant.—H. ROWLAND BROWN, *Hon. Sec.*

ON CRINOPTERYX FAMILIELLA, DE PEYERIMHOFF.

BY T. A. CHAPMAN, M.D., F.Z.S.

The interest one feels in this insect is that which attaches to all the species that form the lower groups, but it is intensified in this case, since we have been led to believe that it occupies a place intermediate between the lowest *Adelidæ* and the *Jugatæ*.

Until last year I was not at Cannes early enough in the season to take the larva, and so had to delay examining the grounds of its claims to such a position.

It is not uncommon in the larval state near Cannes, but is to be taken only during the winter, and in March has well nigh disappeared. Last February (1901) I made search for them, and collected a fair supply of cases. A good account (by de Peyerimhoff) of their habits is to be found in Millière's "Iconographie," and there is a note by Baron V. Nolcken, in the *Stettiner Zeitung* for 1882, p. 188. V. Nolcken says it is "very difficult to rear, one must keep it as cool as possible and also in the dark, since they cannot bear a high temperature. I could not supply these conditions on my return journey, and so only reared a bare seven moths from all my supply of larvæ." I was more lucky than the Baron, since though I brought my larvæ home in various small tin boxes, I reared nearly two hundred moths, in fact hardly one larva died. They emerged at the end of September and beginning of October.

Happening to have *Cistus salvifolius* growing, I was able to see the moths laying their eggs in the substance of the leaves, as is the habit of all *Adelidæ*, and to obtain the eggs, and newly hatched larvæ. Some moths sleeved on the plant out of doors, also oviposited, and the resulting larvæ were found to be cutting out their cases in the latter half of January, 1902.

In de Peyerimhoff's account of the species in Millièrè's Iconographie, vol. iii, p. 229, there is nothing to correct, except that he says the hind-wings have no scales, only hairs. The scales of the hind-wings are not very narrow, but are apically pointed, having a spindle-shaped outline, beyond the middle of the wing they are however broader, and have two, three, and even four teeth, but are not quite so broad as on the fore-wing.

Perhaps one might correct also the statement that the larvæ does not close the case when it retires for pupation, this is not so, it lightly spins together the anterior opening, closes the posterior end firmly, and attaches the case by a few short thick cables to whatever it lies against.

He also speaks of the egg as being laid *on* the leaf, whereas as a matter of fact, it is laid *in* it.

The cases are found at Cannes, wherever *Cistus salvifolius* grows in suitable shaded places, and it especially affects almost seedling plants less than a foot high, such plants being occasionally completely eaten by them, a dozen or more on a plant. They are very rare, apparently accidental on *Cistus monspeliensis*, but are quite frequent in a species of *Helianthemum* (*barbatum* I think, but am not sure of the name) wherever it grows in suitable shaded places in the Esterels.

After it has cut out its case, the larva lives exactly like a *Coleophora*, fastening its case beneath the leaf, and making a hole and a blotch precisely like a *Coleophora*, often a number together. In captivity, the moths preferred laying a dozen or so eggs in one leaf, and avoiding others, rather than distributing them singly, a habit that results in the cases so often occurring in families ("*familiella*").

The larva appears to mine in a very small area, so that the case it cuts out is the whole area it has mined up to that date. I make this statement with some reserve, as I am not positive that the larva does not leave one mine and make another during this period, but I think not. It ejects all frass from the mine by a small opening, precisely as it afterwards does from its case.

When it cuts out the case, it has recently entered the penultimate skin. When removed from the mine, it walks easily, spinning a thread as it goes; it takes a step with the last segment as with the others, but when not doing so, there being no anal prolegs, this segment stands up in the air, as in *Platypteryx* or *Cerura*.

The larva is in all respects an Adelid. The peculiar arrangement of the terminal segment in substitution of the anal prolegs, is common in that group, as is also the condition of the earlier instars,

where no prolegs exist, but the true legs are present. Whether the arrangement of the last segment affords any means of holding on or not, it seems very probable that its object is to afford a hard, chitinous surface, ventrally as well as dorsally, so as to have a solid wedge with which to open the valvular end of the case, or slit in the mine, for the ejection of frass.

The females were somewhat in excess of the males, and more so towards the end of the period of emergence, thus on October 9th, there were 2 ♂s and 8 ♀s. On October 8th, not one emerged, it was a cold, blustry day, and putting the jar the pupæ were in so near the fire as almost to be roasted, did not alter their determination. The same fact was observed earlier, when only one or two came out on a dull, wet day, followed by 30 odd the next day. How the weather affected them in a jar in a room (without a fire, certainly) is difficult to understand, or what element was efficient in the weather variation, it could hardly be temperature, one would suppose, yet could hardly be anything else. The emergences all took place between 7.30 a.m. and 9.30 a.m. Nine-tenths between 8 and 8.30.

The moths could jump a distance of about an inch, this is apparently a common accomplishment of many "Micros," which certainly seem to jump; and though one attributes the movement to wing action, it is probably not so, since I frequently observed *C. familiella* jump in this way before its wings had begun to expand.

Several specimens escaped in the room, and for the most part dived, those that were not followed by the eye at the moment hid themselves effectually at once, and were never seen again, as they did not take to the windows or fly to the light.

In ovipositing, the moth goes over the leaf slowly, touching the surface very frequently with the abdominal apex, apparently to ascertain whether a suitable spot has been found. When found, she settles down, directing the terminal abdominal segments nearly vertically to the leaf, or perhaps with the apex directed slightly forwards. One specimen observed maintained this attitude for 11 minutes. This attitude is also that of *Incurvaria*.

The under-side of the leaf of *Cistus salvifolius* is covered closely with very beautiful stellate hairs. These are very sparse on the upper surface of the leaf, often indeed, almost wanting, except at the margins. This circumstance appears to fully account for the fact that the moth selects the upper surface of the leaf for oviposition, since it would usually be practically impossible to reach the leaf surface beneath with her piercing ovipositor.

Ovum.—Each female moth appears to lay about 80 eggs. The eggs are shaped like a very short, squat fircone, pointed at one end, flattened at the other, apparently circular transversely to this axis. The length is 0.30 mm., the greatest width, 0.22. No sculpturing of surface is detected, the eggs are white, owing to their granular contents, and are soft and easily deformed.

Larva.—The full grown larva is, when at rest in its case, about 4 mm. long, and proportionately very broad, about 0.7 mm., though when stretched out it is longer and more slender.

It looks greenish, according to the amount of material in the alimentary canal, but is otherwise white or nearly colourless, except for the dark smoky colour of the head, true legs, and plates on the second, third and fourteenth segments (head = first). The surface is covered with minute granular points. The head is about half the width of the body, and largely retractile into the prothorax, the rest of the larva is of fairly equal width, perhaps widest about 7th, 8th, and 9th segments, and thence tapering to 14th; viewed dorsally there is a series of hairs, one to each segment, projecting laterally, but double on the thoracic segments.

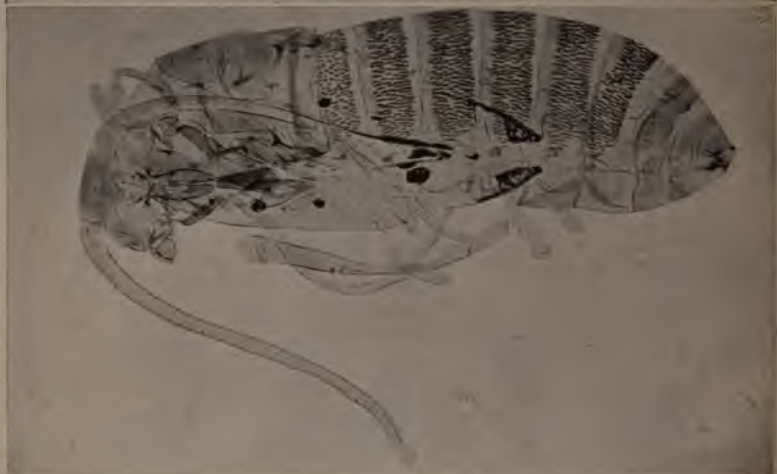
The back of each abdominal segment from below the spiracle upwards forms a surface, divided into two subsequents by a transverse depression, fading out before reaching the spiracle, and tending to end at the posterior margin of the segment, in the later segments, yielding to the tendency to mark off the spiracular area as a lateral flange. Below the spiracle this area is rounded off by a groove from a lateral flange, which is again marked off from the more strictly ventral area, on which, however, a faint groove marks off flange three, flange one being the spiracular area, continuous with the dorsal area.

Tubercles I and II are respectively on these two subsegments, rather far from the middle line and from each other, and II but very slightly further out than I. These carry small hairs, that on II largest and somewhat porrected. The spiracle is well marked, being faintly tinted, circular, apparently not raised above surface. It is towards the anterior margin of segment. Immediately above it is tub. III, with short hair. Directly behind it and on exact middle of segment is IV, carrying the long hair seen on dorsal view. At a lower level, about equally distant from IV and from spiracle is V, not a strong tubercle, and with small hair. On second flange medially is a tubercle with short hair. Below this no tubercle can be detected, except one with moderate hair on anterior external aspect of prolegs, and on site of prolegs on 5, 6, and 11. On 2nd, 3rd, and 4th (thoracic) segments the hair in line with IV is well developed, in 3 and 4 that in line with III. The large plate covering dorsum of prothorax appears to have an anterior and posterior row of hairs, in all six in number on each side, placed, in front row a long and short internally and a long one externally, behind, the short hair accompanies the external long one. On 3 and 4, a short hair appears to accompany III a little above it, and also a short one both in front and behind IV.

Dorsally, on 4th segment two small tubercles occur close together on line of I and II, whilst on the narrow dark plate on 3 it is difficult to be sure of more than one tubercle on either side. The dark plate covering whole dorsum of 14 carries about 12 hairs on each side, the strongest of these along the hind margin, whilst below are also several strong hairs on what one would call the anal prolegs, except for the fact that there are none, but their places are taken by two short cylindrical



1



2



3



4

F. Noad Clark, Phot.

CRINOPTERYX FAMILIELLA, de Peyer.

processes, beneath the anal plate, which look from beneath as if there were a ventral anal plate precisely like the dorsal one, except that it is deeply cut into two lateral portions. No hooks or other holding arrangements are detected here, but the appearances suggest that their processes, and the dorsal one form three fingers that hold on in some way, especially as the larva so often quits its case partially or completely. The arrangement of these processes with chitinous plates outside, and soft tissue within, is a peculiar one, not exactly like any other observed by reporter, except in *Adelida*.

The head is black, with various longish hairs, jaws brown, the two terminal divisions of maxillæ with a row of processes and hairs eight or nine in number. The second joint of antennæ carries a very long hair, a small process or mammilla, and third joint, which again carries a fleshy mammilla and two hairs. The labium has a large spinneret between the palpi. The true legs are strong, consist of the usual basal plate and three joints, which taper regularly from base to the terminal claw, they carry a good many hairs. The claws are well curved, and are accompanied by a large "battledoor" palpus, nearly half as long again as the claw, and spreading out to a width almost equal to its length, it is longitudinally striated, and its form is very much that of a moth's wing, such as a *Pyraustid*.

Ventrally the ganglia are very obvious, and the ventral prolegs are represented each by two rows of hooks. The hooks hardly deserve to be so called, they are black corneous dots, each with a fine point directed from the centre line of the proleg. The proleg itself is merely a fulness of the segment, but has no sort of base, pedicel, &c.

The numbers of the hooks is very variable and irregular. For example, the fore and back hooks of the legs in two specimens counted were 4 legs (2 each specimen) of 7th segment :

	$\frac{3}{2}$	$\frac{3}{1}$	$\frac{3}{3}$	$\frac{0}{0}$
of 8th segment :—				
	$\frac{2}{2}$	$\frac{4}{4}$	$\frac{4}{4}$	$\frac{5}{5}$
of 9th segment :—				
	$\frac{1}{1}$	$\frac{2}{2}$	$\frac{1}{3}$	$\frac{5}{5}$
of 10th segment :—				
	$\frac{0}{0}$	$\frac{1}{8}$	$\frac{0}{4}$	$\frac{3}{3}$

A specimen in water on a slide shows the whole internal anatomy, the cardiac vessel and circulation, the nervous chord and ganglia, the whole of the ramifications of the tracheal system to great minuteness, the intestinal canal, various glands, tubes, &c.

The young larva in its first (and second) instar exactly resembles the adult larva, except that there do not appear to be any hooks to the prolegs, if prolegs indeed exist, and that the claws of the well-developed true legs are very curved, almost sickle-shaped. The four teeth of the jaws are also, perhaps, much larger proportionally.

Pupa.—The pupa is very delicate and pale, but has brown chitinous coloration of the very numerous dorsal spicules, and to some degree of the appendage cases. It is 8.5 mm. in length, and .66 mm. broad, and fairly cylindrical.

The segments 7, 8, 9, 10, abdominal, are fixed in the female, 8, 9, 10 in the male. The first abdominal segment is almost certainly fixed, the second appears to be so, but has an armament of dorsal spines almost like those following. I detect

no definite proof that it becomes free in dehiscence. The appendages all lie in their proper places, but are displaced so readily that their agglutination is most flimsy, but certainly exists. They spread freely on dehiscence: 2—7, and more slightly 8, abdominal have an abundant dorsal armature of spines covering the whole surface. Their arrangement tends to be alternating in successive rows, but irregularly so; sometimes a direct row of six from front to back of a segment may be counted; or, again, ten in a decidedly oblique row, each somewhat overlapping the next; counting as well as one can, sometimes in direct, sometimes in oblique rows, there are 30—36 rows across a segment. On 2nd segment they are very decidedly more sparse, and broader and shorter than on the other segments, in agreement with its actual or approximate fixity. They all lie very flatly to the surface, with the sharp point directed backwards. The anal armature consists of two lateral blunt points. From a little below the spiracles the whole ventral aspect is finely spiculate, as well as much of the dorsal areas of 8—10.

The head piece has a strong bristle at the base of each antenna; a large triangular piece (with rounded angles) as labrum, with two bristles at its base on either side, cheek and eye-pieces wide from side to side, but narrow from above down; eye-pieces not separating, in fact the whole pupa coheres on dehiscence, except for the opening for emergence, labium and palpi well developed. Maxilla pointed, rather broader, and rather shorter than labial palpi. Max. palpi very long, extending outwards and returning superficially back as far as edge of maxilla. Dorsal head-piece small, flimsy, triangular, but quite definite. Prothorax a narrow transverse stripe, prothoracic spiracle very large, in a finely spiculated area dipping between pro- and meso-thorax.

Mesothorax with a small bristle near middle line, and a stronger further out. Metathorax with strong outer bristles, inner very small, sometimes wanting. 1st abdominal small, smooth, without bristles, spines or spicules. It has a good spiracle hidden away beneath hind-wings. Abdominal spiracles, 2, 3, 4, 5, 6 very obvious, circle 7 not too distinct, 8th only a scar. On abdominal segments 2—7 bristles II and III are very distinct, and III on 8th, none on 9 or 10.

Below the mouth parts and between the 1st legs is an unusually wide area occupied by base of 1st (and 2nd) legs. The wings extend to 6th abdominal segment, the 2nd legs a little shorter, and the 3rd rather longer; the abdominal surface is not attached to them, but is impressed to receive them. The antennæ of the female pupa extend nearly to end of wings, in the male to end of pupa, or even just beyond; they are even less firmly fixed than the other appendages.

In emerging the pupa breaks through the weak valvular opening of the end of the case, and projects from it, being held during the escape of the moth by the elastic margins of the case, by about the 6th abdominal segment, it remains projecting so afterwards, and, pale and flimsy as it looks, is fairly solid, and maintains its position under some ill-usage, and when removed by any accident from the case maintains its rotundity and expansion as much as is usual in "incomplete" pupæ.

Imago.—The imago has long antennæ, longer in the ♂ than in the ♀, 39—42 joints in the ♀, 45—46 in the ♂. There are some scales dorsally on the first three joints, but beyond the joints are rather densely clothed all round with rather short dark hairs. A minute transparent spot occurs at one side of each joint about its

centre, whether this is related to the "window" in the joints of *Micropteryx*, or whether it marks where a scale has fallen off, is impossible to say, but I have never been able to detect a scale on any antennal joint, beyond the two or three basal ones. The maxillary palpi are long, slender, extend outwards, and consist of five joints, of which the fourth is much longer than the others. The labial palpi are three-jointed; there is a round projection (mandible?) above base of maxillary palpi. Haustellum not observed.

Anterior tibiæ with spines about one-fourth its length, arising three-fifths from base of tibia, beautifully curved and fringed, apparently same in both sexes. Neuration as in *I. muscalella*, except that in fore-wing nerves are evanescent over the whole area of end of cell, and 1b is simple at base, and 1a absent. Hind-wing practically as in *I. muscalella*; frenulum in ♀ of two hairs, beyond the frenulum the costa carries several long hairs.

♂ appendages, valves divide into a wide rounded process, and a narrower, sharper one carrying a very strong bristle or baton, jointed at its base.

Ovipositor as in *Adela* as regards having lost the ventral plate of 7th abdominal segment, which persists in *I. muscalella* (both ventral and dorsal plates of 7 exist in *Eriocrania*), otherwise very similar to that of *Incurvaria*, with a grand fringe of bristles along margin of last ventral plate.

One does not, without some trepidation, venture to disagree with Dr. Arnold Spuler on any question of neuration. Yet I would venture to submit the following:—In an essay in the Classification of the Tineæ, in the Verhandlungen der Deutschen Zool. Gesells, 1898, p. 161, he states that he has found in *Crinopteryx familiella* a form which shows the reduction of vein II of the hind-wing in several progressive forms. The importance of the statement being due to the fact that such forms as he figures, are supposed to make *Crinopteryx* a connecting link between the *Palæo* and *Neo-Lepidoptera*. He gives three figures, one of which (Fig. 13) is a not remarkable ordinary neuration for a Neo-Lepidopterous hind-wing. This one, he states however, to be an aberration. Now, it so happens, that I have prepared a number of hind-wings for examination, and have also looked over some dozens of unprepared imagines, and have met with none that seemed to promise, that after proper preparation, they would show any deviation from the type. This type is precisely the aberration of Dr. Spuler above referred to. This is unquestionably, overwhelmingly, the most frequent neuration of the hind-wing in *Crinopteryx*. I have met with no trace of any other. It is indeed remarkable that I have not done so, seeing that it is really rare to meet with no neurational variations, if sufficient specimens of almost any species be examined. But Dr. Spuler calls this an aberration. Why? One can only guess that he had very few examples before him; and this is the more likely, as the species is not abundant in

duplicate boxes. Had he examined even a few, he would have recognised this one as typical—not only typical of *Crinopteryx*, but also purely Neo-Lepidopterous. Then there is his Fig. 12, which he figures as the ordinary neururation of *Crinopteryx*. I have never met with this. But further, it looks to me to be an entirely impossible neururation, except as a monstrosity.

In examining the tracheæ in the pupal state, of many species, and I have just looked over a number of photographs of these, and have referred to Dr. Spuler's "Dissertation," 1892, to confirm my memory, one finds that the vein Dr. Spuler marks in Fig. 12 and Fig. 13 as II 4 and 5, is most certainly III 1, and that his III 1, of Fig. 12 is an impossible vein, and must therefore be an accidental fold of wing membrane, made in preparing the specimen. Whether it be a monstrosity or be an accident in preparing the specimen, it is difficult to understand how Dr. Spuler took it for the ordinary form in *Crinopteryx*, which it certainly is not, whatever else it may be. Paucity of material, one again guesses. His Fig. 13 is still more difficult to accept. It is confessedly drawn from a fragment of wing, how broken not stated, and is like nothing neurational I ever heard of. I am forced to conclude that, having inadequate material, Dr. Spuler made some erroneous observations, and incautiously accepted them. The neururation of the hind-wing of *Crinopteryx* is of an ordinary Neo-Lepidopterous type. Nor is there any reason to believe it varies in (or reverts to) the direction of a Palæo-Lepidopterous form, more often than that of any other species, that is, practically, not at all.

Generally the pupa is identical with that of *Incurvaria*, and agrees even to considerable detail. Compared with *muscalella* the head and mouth parts are identical.

The Neo-Lepidopterous character of the fixity of terminal segments is very definite in both.

The general spiculation of surface is the same; the circumspiracular bristles are more preserved in *muscalella*; the dorsal armature is of the same character, but much reduced in *muscalella*, and is wanting on 2nd abdominal, but other evidence that this segment is fixed is no stronger in one pupa than the other.

Muscalella has much more solid chitine, and as a result the appendages retain their positions after dehiscence, with more solidity, that they are however, free from the body and from each other, is shown in the empty pupa case by the case of the hind-wing being as

strong and as obvious throughout its whole extent as that of the forewing. In this respect it is more primitive than that of *familiella*.

The pupal differences are not sufficient to give subfamily rank, hardly even generic.

The position of *Crinopteryx* is at about the same level as *Incurvaria*. The structure of the pupa shows it to be almost at the same level, possibly rather below *Incurvaria*, the second abdominal segment being perhaps a little less fixed. The loss of sundry bristles is not very definitive, but is an advance. The structure of the ovipositor is distinctly further removed from that of *Eriocrania* than that of *Incurvaria* is. The neururation suggests that though parallel, they are not on the same line of development, the want of loop to 1b. shows this, and perhaps points to higher development.

In the *Adelidæ* (roughly equal to Dr. Spuler's *Tineæ Aculeatæ* in which however he places *Nepticula* and *Tischeria*, and some others, which are not *Aculeatæ*).

Crinopteryginae as a subfamily would be of position equal to *Incurvarianæ* at base of family. The Coleophora habit of the larva is its main claim to subfamily rank, separate from the *Incurvarianæ*; *Phylloporianæ*, *Antispilinæ*, and *Lamproniadæ*, would have an intermediate position, with *Adelidæ* as the highest group.

Crinopteryx would have less claim than *Incurvaria* to form any sort of link between *Adelidæ* and *Eriocraniadæ*, and though all fairly close, it is as abundantly Neo-Lepidopterous, and as free from any remaining characters of Palæo-Lepidoptera as any of the subfamilies of *Adelidæ*.

EXPLANATION OF PLATE II.

From Photographs by Mr. F. Noad Clark.

Fig. 1—Larva, ventral aspect, $\times 20$ diams.; the nervous ganglia and tracheæ and the ventral prolegs are seen; there are no anal prolegs.

Figs. 2 and 3—Lateral and dorsal views of pupa case, $\times 20$ diams.; on fig. 3 one of the stellate hairs of the *Cistus* happens to have adhered, having no doubt broken off the larval sac on emergence.

Fig. 4—Hind-wing (denuded), $\times 35$ diams., showing neururation, sufficient scales are left to show the character of the scaling; in the photograph the spinous wing points are seen, these do not come out in the plate, the dots present are points of scale attachment.

Betula, Beigate:

January, 1902.

P.S. (22.3.1902).—My larvæ raised here have enabled me to note that in fixing its case for æstivation and pupation the larva closes the

head end after fixing it to some object if a suitable one is available, and then makes the other extremity the exit end, a reversal precisely the same as occurs in *Psychidæ* and *Coleophoræ*. It closes this end by a portion of silk that protrudes beyond the valves as a white line, and admits of being easily ruptured from within.

In case-bearing *Adelidæ* generally the two ends of the case are usually so much alike that the question of whether the larva so reverses itself for pupation must be difficult to investigate; I am not aware of any answer having been given to it.—T. A. C.

TWO NEW SPECIES OF *HEMIPTERA-HETEROPTERA* FROM SPAIN.

BY PROF. O. M. REUTER.

The two insects described were found by Mr. G. C. Champion during his recent expedition to Central Spain, and the specific names adopted have been suggested by him.

1. *PIEZOSTETHUS TERRICOLA*, *sp. n.*

Niger, lævis, nitens; antennis totis femoribusque nigro-piceis, tibiis tarsisque sat obscure testaceis, tibiis posticis interdumque etiam anterioribus basi saepe picescentibus; hemielytris piceis, clavo, embolio cuneoque nigris, formæ brachypteræ basin segmenti tertiî abdominis attingentibus, dimidio basali suturæ clavi discreto, cuneo corio circiter triplo brevior, distincte leviter declivi, membrana angustissima lineari; tibiis postice tenuiter spinulosis, tenuissime et brevissime parce pubescentibus, pilis exsertis destitutis; rima orificiorum metastethii in angulum leviter obtusum curvata, mox ante marginem basalem pleuræ abbreviata. Long., $1\frac{1}{2}$ — $\frac{1}{2}$ mm.

This species was found at Albarracin under stones on a high ridge clothed with pines, in company with *Galeatus*, *Acalypta*, *Agamma*, &c.

P. obliquo, Costa, valde affinis, differt tamen hemielytris piceis nec albovariegatis tibiisque pilis exsertis destitutis; *P. cursitante*, Fall., minor, obscurior, magis nitens, antennis obscurioribus, articulo secundo brevior (spatio interoculari verticis distincte brevior), ultimis nigro-piceis, hemielytris formæ brachypteræ paullo longioribus, obscurioribus, sub-lævibus (omnium tenuissime parcius punctulatis), sutura clavi saltem dimidio basali discreta, cuneo brevi sed discreto et leviter declivi divergens.

2. NASOCORIS EPHEDRÆ, *sp. n.*

Capite, pronoto scutelloque fuscis, fronte clypeoque albido-flaventibus, illa utrinque fuscescenti-lineata; capite pronotoque pilis intricatis argenteis vestitis, his pilis pronoti vittas tres longitudinales formantibus; articulo primo antennarum ferrugineo, latitudini capitis inter apices oculorum aequae longo, crasso, dense et longe plumbeo-nigro-piloso, articulis reliquis gracilibus, albidis, tertio secundo distincte paullo longiore, quarto primo aequae longo; capite fortiter nutante, clypeo fortiter prominente, margine antice setulis clavatis plumbeis dense instructo; pronoto basi longitudine circiter duplo latiore, apice basi fere duplo angustiore; hemielytris stramineis vel interdum levissime in fuscescens vergentibus, breviter sat dense minus tenuiter aureo-pubescentibus, membrana sat obscure fumata, venis obscurioribus; femoribus fuscescentibus, tibiis et tarsis albidis, illis albo-spinulosis et subtiliter fusco-punctatis, anticis albo-pilosis.

Long., ♂, $3\frac{1}{2}$, ♀, $3\frac{1}{2}$ mm.

Found at Albarracin on *Ephedra nebrodensis*.

A speciebus duabus adhuc cognitis tibiis fusco-punctatis mox distinguendus, a *N. argyrotricho*, Reut. (e Rossia meridionali et Turkestan) colore paullo obscuriore, antennarum articulo primo obscurius piloso, tertio secundo distincte paullo longiore, clypeo paullo minus prominente, pubescentia hemielytrorum brevior sed minus tenui, aurea, femoribus fuscescentibus; a *N. platycarenoïde*, Mont. (ex Algeria), statura minore, colore obscuriore, capite magis declivi, pronoto fortius transverso, hemielytris aureo-pubescentibus, etc., divergens.

Helsingfors: March, 1902.

A NEW GENUS OF GELECHIADÆ.

BY E. MEYRICK, B.A., F.Z.S.

Whilst working out the *Gelechiadæ* of Australia, I came to the conclusion that a new genus should be founded for the following cosmopolitan species; and my friend Mr. A. Busck, of the United States Department of Agriculture, who agrees that the genus is valid, has courteously requested me to publish it at once, as he wishes to adopt it in a forthcoming paper of his own.

PHTHORIMÆA, *n. g.*

Head smooth; tongue developed. Antennæ $\frac{1}{2}$, in ♂ filiform, simple, basal joint elongate, without pecten. Labial palpi long, recurved, second joint expanded

with rough projecting scales beneath, terminal joint as long as second, loosely scaled, acute. Posterior tibiae clothed with long hairs above. Fore-wings: 2 and 3 remote, 7 and 8 stalked, 7 to costa, 11 from middle of cell. Hind-wings 1, trapezoidal, apex produced, acute, termen bisinuate, cilia $1\frac{1}{2}$; in ♂ with long pencil of hairs lying along costa from base beneath fore-wings; 3 and 4 connate, 6 and 7 remote, nearly parallel.

Type *P. operculella*, Zell., Verh. zool.-bot. Ges. Wien, 1873, 262, pl. iii, 17; *solanella*, Boisd., J. B. Soc. Centr. Hort., 1874 (Nov.); Meyr., Trans. N. Zeal. Inst., 1885, 166.

I am indebted to Mr. A. Busck for the identification of Zeller's *operculella* with this insect; he was good enough to get permission for one of Zeller's American types to be forwarded to me for confirmation, which I was able to give without hesitation. The species is now very widely distributed; it is common in Australia and New Zealand, and Boisdual described it from Algeria, but it is probable that North America is its place of origin. It is everywhere very destructive to the potato, in the tubers of which it feeds, and I have no doubt whatever that it will some day be found in England as an introduced species, though climatic circumstances are perhaps not favourable to its permanent establishment.

Elmswood, Marlborough:

April, 1902.

TWO NEW PALÆARCTIC SPECIES OF *ASTATUS*.

BY THE REV. F. D. MORICE, M.A., F.E.S.

The following two species of *Astatus* appear to me sufficiently distinct to be described as new, though I am a little unwilling to increase the synonymy of this puzzling genus.

To explain my remarks as to their antennæ, I may say that in *A. boops*, Schr., and also in *A. minor*, Kohl, the intermediate joints of the ♂ antennæ are more dilated beneath in their basal and apical thirds than in their middles. In other words the dilatation is *emarginate*, or it might be described as *double*—a basal and an apical dilatation, separated from each other by a central sinus. This, though a minute character, is not difficult to recognise, and appears to be constant in the species named above; but I can see nothing of the kind in *A. stigma*, Pz., nor in either of the species now to be described.

1. *ASTATUS PELOPS*, n. sp.

♂. Niger, abdominis basi rufa, antice albopilosus. *A. boopi*, Schr., similis, sed *tegulis tuberculisque humeralibus albis*, tibiis anticis antice obscure rufescentibus.

Clypei apex fortius quam in *boope* reflexo-productus, nonnihil rotundatus. Frons infra ocellum anticum valde turgida, sulco angusto sed profunde impresso longitudinaliter divisa. Antennarum articuli intermedii infra in medio ne minime quidem emarginati. Alarum superiorum vena transverso-cubitalis prima venæ *basali* (non ut in *boope* venæ *recurrenti primæ*) fere parallela; unde multo minor fit cellula cubitalis secunda, neque est ea infra (ut in *boope*) cellulæ cubitali primæ latitudine subæqualis sed multo angustior, tertiæ vero pæne æqualis.

Abdominis segmentum primum dorsale crebrius fortiusque subprofunde punctatum. Pili abdominis apicales haud albi sed plus minusve nigricantes.

Long., 11 mill.

Morawitz describes his *tegularis* (from Mongolia) as having white tegulæ, but the rest of his description does not at all suit the present insects. In *maculatus*, Rad. ("maculis callosa, subalari, humerali, eburneis") the abdomen would seem to be black, the tegulæ are not mentioned. In *Miegii*, Duf., the tubercles are white, but the tegulæ are called nigro-fuscous, and the abdomen seems to be impunctate—at least it is spoken of as simply "lævigatus." Of *scapularis*, Kohl, also a species with white tubercles, only the ♀ is known, which makes a comparison of it with my species not easy. But I see no reason to think they are identical. *Scapularis* ♀ is described as having an emarginate clypeus, and as resembling *boops* ♀ in the alar neuration and the structure of the antennæ; the tegulæ do not seem to be white, nor the brow unusually swollen, nor the abdominal puncturation remarkable. After making all due allowance for sexual difference, it still seems unlikely that *Pelops* can be the missing ♂ of *scapularis*.

The peculiar structure of the frons and the clypeus, the strongly punctured base of the abdomen, and the narrow 2nd submarginal cell, together with the clear ivory-white tegulæ and tubercles, make *Pelops* ♂ a very distinct and easily recognised insect.

Two of its characters (the swollen frons and the neuration) might suggest that we are dealing after all with a *Homogambrus*! But that is certainly not so. *A. Pelops* has the simple mandibles, the distinct round ocelli, etc., and in short, all the essential characters, as well as unmistakeably the facies of an *Astatus*; and to that genus beyond all question it belongs.

I took two males at Olympia (10th—11th May, 1901) but could find no female.

The locality has suggested to me the name proposed, the hero Pelops having been specially connected with Olympia (see Pindar's First Olympian Ode). It is also a curious coincidence that both Virgil and Pindar call Pelops "distinguished by his ivory shoulder"—just as is the present insect.

2. *ASTATUS MASSILIENSIS*, n. sp.

♂. Niger, antice albo-pilosus, pedibus maximam partem rufis. Ab *A. boops*, Schr., differt abdomine toto nigro, tibiis tarsisque omnibus late rufis, thorace (etiam basi scutelli!) crebrius punctato proptereaque minus nitido, antennarum articulis intermediis infra fortius sed simpliciter (haud emarginate) dilatatis, abdomine infra brevius subfusco-piloso. Long., 13 mill.

One ♂ taken at Marseille, 27th June, 1898: Herr Kohl told me that there was a similar specimen (from Oran) in the Vienna Hofmuseum.

This species is not distinguished by quite such satisfactory characters as the last. I see nothing in the clypeus or wings, except that the latter are unusually clear, to separate it from *boops*. The antennæ, however, are certainly different, and the combination of a black abdomen with red tibiæ and tarsi gives it a very distinct appearance. It cannot well be *unicolor*, Lep., for that is described as having the legs and the hairs of the thorax black. Nor does it agree with a specimen I have seen from Corsica, labelled "*piceus*, Costa," which (inter alia) has the sinuated antennal dilatations of *boops*, and is, I suspect, only a black form of that species. In *massiliensis* the dilatations are strong, but with a quite simply convex (not sinuated) outline. Nor—*teste auctore ipso*—is it *carbonarius*, Kohl, which further is described as identical structurally with *boops*.

Brunswick, Woking:

February, 1902.

ODYNERUS BIFASCIATUS, LINN.,

AN ADDITION TO THE LIST OF BRITISH HYMENOPTERA.

BY EDWARD SAUNDERS, F.L.S.

I have had in my collection for some time, *i. e.*, since 1895, a series of this wasp mixed up with *O. sinuatus*, Fab. Nearly all my specimens were taken by Mr. W. H. Tuck at Tostock, near Bury St. Edmund's, some in 1895 and others in 1897; but I possess one individual, which formed part of Shuckard's collection, and was included by him also under *sinuatus*. In general facies the species are very much alike, but they may be distinguished by the following characters:—

The postpetiole of the first segment of the abdomen in *bifasciatus*, *i. e.*, that portion beyond the basal transverse ridge, is distinctly more quadrate and less cone shaped than in *sinuatus*, being shorter, and wider at the base than in that species,

the sides diverge from the basal ridge much less rapidly, the general effect being that the postpetiole of *bifasciatus* looks, and is, distinctly broader than long, whereas that of *sinuatus* looks longer than wide, although actually the apical margin is longer than the length of the postpetiole; the longitudinal foveæ of the disc in *bifasciatus* is also less defined than in *sinuatus*; besides these structural characters the pronotum is entirely black, the legs are less ornamented with yellow, and the abdominal bands are slightly narrower.

St. Ann's, Woking:

April 8th, 1902.

NOTES AND QUERIES ON MR. VERRALL'S LIST OF BRITISH
DIPTERA, SECOND EDITION.

BY C. W. DALE, F.E.S.

1.—Why is *Typhlopsylla assimilis*, Tasch., Ent. Mo. Mag., vol. xxvii, p. 170, xxviii, p. 67, relegated to the reputed list?

2.—Where has the Hon. N. Rothschild described his species of *Pulicidæ*?

3.—Why is *Pericoma punctum*, Eaton, omitted?

4.—Is not *Mycetophila ornata*, Steph., an older name for *M. lutescens*, Zett., and *M. zonata*, Steph., a synonym of *Rhynchosia fasciata*, Mg.? They were both figured and described by Stephens in 1835.

5.—Is not *Culex concinnus*, figured and described by Stephens, a synonym of *C. lateralis*, Mg.?

6.—Why is *Culex guttatus*, Mg., figured by Curtis, omitted?

7.—Why is the pretty *Cecidomyia pictipennis*, Mg., omitted? It was included in Curtis's Guide on the strength of specimens taken by my father here in February.

8.—Is not *Diomyza pulchra*, Mg., figured by Stephens, a synonym of *Lasioptera rubi*, Schr.?

9.—Is not *Chironomus dolens*, Wlk., a synonym of *C. anthracinus*, Zett.?

10.—Why is *Chironomus tarsalis*, Wlk., omitted, and *C. modicellus*, Wlk., in the reputed list? They both occur here; they are both probably only synonymic names, but of what species?

11.—Why is the old genus *Ceratopogon* kept in one heterogeneous mass, whilst *Cecidomyia*, *Tachina*, *Anthomyia*, &c., have been so cut up? Surely the following generic names ought to be again adopted: *Sphaeromyia*, Curt., type *fasciatus*, Mg., = *albomarginatus*, Curt.; *Culicoides*, Ltr., type *pulicarius*, L.; *Serromyia*, Mg., type *femoratus*, Mg.; *Forcipomyia*, Mg., type *bipunctatus*, L.

12.—The larvæ of *F. bipunctatus* live under the bark of elm; and the larvæ of *Scatopse albitarsis* in the pith of the burdock.

13.—There is a third species of *Xiphura*—*rusticornis*, Mg. It is a slightly larger species than *X. nigricornis*, Mg., but the chief distinction lies in the antennæ. Those of *nigricornis* are entirely black, but of *rusticornis* only the basal joint is black, the remaining portion being red. My specimens of *rusticornis* came from Bannoch and North Wales. *Nigricornis* appears to be confined to the New Forest.

14.—The species of *Orimarga* which occurs on the South Devon coast is not *virgo*, Zett., but apparently *juvenilis*, Zett., but at present the question is not quite cleared up.

15.—Why is *Xysta cana*, Mg., Ent. Mo. Mag., vol. xxxi, p. 212, omitted?

16.—Is not *Anomæa permundus*, Harris, an older name for *A. antica*, W.?

17.—The larvæ of *Heteroneura albigana*, Mg., live in rotten wood. I have bred the species from little red pupæ.

18.—Why is *Masicera virilis*, Rnd., Ent. Mo. Mag., vol. v, n. s., p. 157, omitted?

19.—Is not *Pocota personatus*, Harris, an older name for *P. apiformis*, Schrck.? Moses Harris' work was published in 1786, and it is probable that many of his names will have to be re-instated.

20.—I think it is a pity (and, perhaps, all Dipterists will agree with me) that Mr. Verrall did not adopt Baron Osten Sacken's grouping of the families of the *Nemocera*, Ent. Mo. Mag., vol. ii, n. s., p. 39. The position of the *Bibionidæ* and *Simulidæ* in his list appears to be most radically wrong.

21.—Why is not *Siphona* placed near or next to *Prosenia*, to which it appears much allied? I have a third species of it—a tiny little fellow.

Glanvilles Wootton :

February 25th, 1902.

REPLY TO MR. DALE'S QUERIES.

BY G. H. VERRALL, F.E.S.

Through the courtesy of the Editors I am enabled to reply at once to Mr. Dale's enquiries.

I invite and desire criticisms of my "List of British" *Diptera*, because such action must conduce to making any subsequent "List" more correct.

I will answer Mr. Dale's queries as shortly as possible, and take them in the order he has numbered them.

1.—*Typhlopsylla assimilis*, Tasch. According to Rothschild (Nov. Zool., v, 539) this species was introduced by Saunders in mistake for *T. agyrtes*, Heller (misprinted in my List as *T. agertes*), and I have consequently relegated it to the reputed List.

2.—Nov. Zool., v and vii, and Ent. Record.

3.—*Pericoma punctum*, Eaton. Where has it been described? I know nothing of such a species. I can hardly imagine Eaton naming a species "*punctum*."

4.—I do not profess to know *M. lutescens*, Zett.; I think I possess *M. ornata*, Steph., in numbers, but I am very uncertain about its nomenclature. As to *M. zonata*, Steph., I do not know it, but if a synonym of *Rhymosia fasciata*, Meig., Meigen's name has about twenty years priority. I have said in my preface that the *Mycetophilidæ* are still in a most unfinished condition.

5.—I do not know. Theobald in his recent Monograph omits the species entirely. I have a MS. note that it is a synonym of *C. ornatus*, Meig.

6.—*C. guttatus*, Curt., has long been accepted as a synonym of *C. nemorosus*, Meig.

7.—*Cecidomyia pictipennis*, Meig., remains where it was in my List of 1888. Walker did not include it as British in 1856.

8.—It is, according to MS. notes of mine, and I expect that is the reason that I included *L. rubi*, Schrk., in my List of 1888.

9.—It is possible; but *C. dolens*, Wlk., is apparently an *Orthocladus*, while Zetterstedt's name would sink as a synonym, on the ground of priority, if the two should prove to be the same species. I possess a distinct *Chironomus*, which I have been calling *C. anthracinus*, Zett.

10.—*Chironomus tarsalis*, Wlk., and *C. modicellus*, Wlk., are in the expurgated List as being merely encumbrances. They have never yet been "described," and therefore it is impossible to say of what species they are synonyms.

11.—*Ceratopogon* is a most remarkably homogeneous genus, and all attempts to divide it have been failures. When Winnertz monographed the *Mycetophilidae*, he made scores of new genera, but in his exquisite monograph of *Ceratopogon* he recognised that he was dealing with a large natural genus. Some recent further attempts by an inexperienced French author would place numerous males in one of his so-called genera, and the females in another genus. If Mr. Dale will give us thoroughly reliable characters (distinguishing, without doubt, in all species) of *Spharomyia*, *Culicoides*, *Serromyia*, and *Fercipomyia*, he will grant a great boon to Dipterologists, because for some seventy years we have been searching for those clear distinctions.

12.—Nothing to do with my "List."

13.—*Xiphura ruficornis*, Meig., was more than fifty years ago accepted as a synonym of the very variable *X. atrata*, L.

14.—As Mr. Dale says "at present the question is not quite cleared up." I consider the distinctive characters of the European species of *Orimarga* still very uncertain.

15.—*Xysta cana*, Meig., v. *Phasia Rothi*, Zett.; see Austen, Ent. Mo. Mag., xxxiv, 39.

16.—If Moses Harris had described a *Musca permundus* I would have accepted his name, but unfortunately he did not do so. The name he gave is inadmissible, as it is not Latin.

17.—Nothing to do with my "List."

18.—I suppose *Masicera virilis*, Rnd., was omitted because I had not the vaguest idea what species was intended. When Meade could return *Sarcophaga oarnaria* to an enquirer as a fine new species of *Masicera* (as I am assured he did) I do not think that he understood the limits of the genus.

19.—See British Flies (*Syrphidae*) pp. 589 and 633. I only re-instate Moses Harris' names when they are indisputable; in this case there is doubt which can never be cleared up.

20.—Baron Osten Sacken has himself said that he does not expect his proposed changes to be adopted without long consideration, and possibly modification after they have been well tested. I desired to make as little change as possible from my "List" of 1888, though I can foresee many changes probable, but I hope gradual, such as (*pace* Osten Sacken) *Rhyphus* and *Leptis* next to each other.

21.—*Siphona* is placed as Brauer and Bergenstamm placed it, and they knew more about *Tachinidæ* than anybody else in the world. As to Mr. Dale having a third species, I dare say I could produce a thirteenth species, but I am not satisfied with the distinctions and the nomenclature. Anyhow *Siphona*, which in our old arrangement was a Tachinid, can have no relationship to *Prosenia* which was a Dexid.

I take this opportunity of noting a few corrections to my "List."

Ditomyia fasciata has been given to me by Rev. E. N. Bloomfield, through a specimen taken by Mr. W. H. Tuck, at Tostock, near Bury St. Edmunds, in May, 1898, and consequently the species may now be considered truly British.

Chironomus fuscipennis, Mg., ought not to have been in italics. I caught a female at Boxhill in 1867, and one at Colwich in 1889, and I possess a third female from Painawick, taken by Mr. C. J. Watkins, which was also caught in 1889.

Theriopterus luridus, Fallén; several females of this well marked species were taken by Col. Yerbury at Nethy Bridge, in June. 1900. Even though this species was amongst our "reputed," I believe this to be the first genuine record.

Chilosia carbonaria, Egger, was accidentally omitted from the "List."

Syrphus torvus is not *S. topiarius*, Mg., but *S. topiarius* Auct. *S. topiarius*, Meigen, was only *S. vitripennis*, Meigen.

Chrysochlamys ruficornis, F., may have the italics removed, as Mr. F. C. Adams has taken two specimens.

Hyalargus lucidus, Mg. This very distinct Tachinid has been taken by Dr. J. H. Wood, who gave me two specimens, from Ashperton Park (July 12th, 1899) and Woolhope (July 3rd, 1899). It was sent to me as *Nemoræa rubrica*, Mg., but I could only reply that it was not a *Nemoræa* at all, though what it was I could not then say.

Hyetodesia vagans, Fallén, is a true British species. The record given by Mr. R. C. Bradley is quite correct, and I have seen his specimens. I had previously caught and correctly named one female, but had distrusted my own identification.

Sussex Lodge, Newmarket:

March, 1902.

Acletozenus syrphoides, Frnfd., at Lyndhurst.—Recently, when looking over some unnamed *Diptera*, I noticed two which strongly reminded me of the beautiful illustration of this fly by Mr. Edwin Wilson, published in vol. xxxviii of this Magazine, and a reference to same, aided by the very lucid description given by Mr. Collin, leaves no doubt in my mind of their identity. I can therefore record the capture of a ♂ on September 19th, 1898, and a ♀ on July 15th, 1900, both in my garden at the above place.—F. C. ADAMS, 50, Ashley Gardens, S.W.: March 29th, 1902.

Chrysochlamys ruficornis, F., in the New Forest (supplementary).—Since the publication in the April number of this Magazine of my "Notes on *Diptera* in the New Forest during 1901," I have come to the conclusion the capture of *C. ruficornis*, F., for identification of which I am indebted to Mr. Verrall and his nephew Mr.

Collin, ought to be specially recorded. I possess two specimens of this fly, one having been taken some years back in my garden at Lyndhurst on July 16th, and placed in my cabinet at the time as doubtful *C. ruficornis*, where it was overlooked until I took the other on April 25th, 1901. I exhibited both at Mr. Verrall's Meeting of the Entomological Club, held January 14th, 1902, and as there was still some doubt about the specific name, left them with Mr. Collin, who kindly promised further examination, and he recently returned them as undoubted *ruficornis*, F., an opinion which was confirmed by Mr. Verrall; the former also wrote "this is an interesting capture, as it confirms Mr. Verrall's conjectures in British Flies (*Syrphidae*), page 627."—ID.: *April 3rd*, 1902.

Dipterous parasite of Acanthopsyche atra, L. (*opacella*, H.-S.).—In my note in the Ent. Mo. Mag., 1901, pp. 62 and 127, I was unable to give the name of this parasite. Some flies bred from *A. atra*, and almost certainly the same species referred to in these notes, are determined by Mr. Collin to be *Statomyia filipalpis*, Rnd., which has been recorded to have been bred from *Psyche graminella* and *unicolor* (names which are synonymous), a fact that confirms my suggestion that the control of the parasite over the instincts of its victim had not been learned on *atra* only. *Acanthopsyche opacella*, H.-S., must now be called *A. atra*, L., the Linnean type having been unearthed by Mr. Prout.—T. A. CHAPMAN, Betula, Reigate: *April*, 1902.

Lathrobium atripalpe, Sharp, and other Coleoptera in North Yorkshire.—It may interest Coleopterists to learn of the occurrence of a few somewhat rare beetles in North Yorkshire during 1901. When collecting in Upper Teesdale in September I took a specimen of the rare *Lathrobium atripalpe*, Sharp, under a stone on the high moor near Cronkley. In Saltburn Wood I beat a single *Anaspis Garneysi*, Fowler, from whitethorn blossom in June; whilst *Rhagonycha unicolor*, Curt. (in July), and *Malthodes misellus*, Kies. (in June), were swept from herbage in the same locality. At Saltburn, too, *Homalota fragilis*, Er., was found running over the mud on the margin of a stream in July, but I only captured one specimen. Two "notes" appeared in this Magazine during last year on the habitat of *Dryophilus pusillus*, Gyll., one by Dr. J. Harold Bailey, and the other by Mr. F. H. Day. This species is common in Saltburn Wood in June, but I have only, as yet, observed the insect on larches.—M. LAWSON THOMPSON, 35, Leven Street, Saltburn-by-the-Sea: *March 17th*, 1902.

[The specimen of *Anaspis Garneysi* referred to is a male, and is easily verified by the characters of the third ventral segment of the abdomen in this sex, which is much elongated, and is furnished with two rather stout and widely separated appendages, which are strongly curved inwards towards one another, and enclose between them an almost circular smooth and shining space. The species is probably not uncommon, but is overlooked, as it closely resembles *A. frontalis*, from which it may be known by the somewhat longer and more slender antennæ and more evident sculpture, and also by the colour of the legs; it has occurred at Ditton, Horsell, Ashted, Claygate, Mickleham, Cowley, Loughton, Darenth Wood, New Forest, Tewkesbury, &c.—W. W. F.]

Tachys parvulus, Dej., at Horsell.—Amongst a number of common *Coleoptera* captured on the wing to-day—the first really fine day this year—I was agreeably surprised, on emptying the bottle in the evening, to find a specimen of *Tachys parvulus*, Dej. It has quite recently been recorded from the New Forest (Ent. Mo. Mag., xxxviii, p. 65).—G. C. CHAMPION, Horsell, Woking: April 13th, 1902.

Sirex juvencus, L., in Paternoster Row, London.—On the 5th inst. a very lively ♀ of *Sirex juvencus* was caught in an office in Paternoster Row; it is still living. Probably it had emerged from a continental packing case.—R. McLACHLAN, Lewisham, London: April 17th, 1902.

A black variety of *Holocentropus picicornis*, Steph. (Trichoptera) from South-West Ireland.—Col. Yerbury gave me a small black Trichopteron from Parknasilla (Co. Kerry) which he took on July 13th, 1901. At first sight it resembles a small *Silo* or large *Berœa*, but examination proved it to be a *Holocentropus*, with no structural characters to distinguish it from *H. picicornis*. The wings are totally black, with the pubescence of the anterior slightly rusty (which will probably intensify with age), the antennæ without annulations. Mr. Morton agrees with me that the appendages (it is a ♂) show no difference, and Mr. King informs me that he has not met with a similar variety in the Killarney district, where he has done much collecting. As is so often the case in parallel instances only this one example was taken; in fact, Col. Yerbury brought only two specimens of *Trichoptera* from the district, this and a ♂ of *Sericostoma personatum*, Sp. In my "Monographic Revision and Synopsis," p. 403, I say of *H. picicornis* that some examples have the anterior wings "nearly black, without markings." I possess no such old specimen now, and feel sure the words were not intended to apply to so black a form as that noticed above.—ID.: April 5th, 1902.

A few Trichoptera from West Cornwall.—It may be well to place on record the following species captured by me between May 20th and June 6th, 1901:—

Leptocerus cinereus, Curt., Lizard; *Adicella reducta*, McLach., Lelant, Porthonstock; *Dipletrona felix*, McLach., St. Ives, Lelant, Porthonstock; *Philopotamus montanus*, Don., St. Ives; *Wormaldia occipitalis*, Pict., St. Ives, Lelant, Porthonstock; *Plectrocnemia geniculata*, McLach., St. Ives; *Polycentropus flavomaculatus*, Pict., Porthonstock; *Tinodes wæneri*, L., a small form, Lizard; *T. assimilis*, McLach., Porthonstock; *Rhyacophila dorsalis*, Curt., St. Ives; *Agapetus fuscipes*, Curt., St. Ives, Lelant.—W. C. BOYD, Cheshunt: April, 1902.

Historical Notes on *Lycæna Acis* in Britain.—I have read, and with interest, Mr. Dale's "Historical Notes on *Lycæna* (*Polyommatus* in my day) *Acis*" in the April No. of the Ent. Mo. Mag., p. 76. I see my name mentioned as having taken *Acis* in Gloucestershire as follows:—"Two at Lower Guiting, on the Cotswolds, by the Rev. J. Greene in the beginning of July, 1849" (Zoologist, vol. x, p. 3494). The capture is correct, but the date of the year and the month of the capture are alike wrong. The reference to vol. x of the "Zoologist" (published 1852) is "List of *Lepidoptera* on the Cotswolds, Gloucestershire," written and sent by

myself to the Editor in 1853, when I was at Halton, Bucks. The fourth on the List is "*P. Acis*, scarce, two, end of June." There is no *year* mentioned, and the *month* is June not July. Where Mr. Dale got his dates I know not; but it is sufficient evidence of their being wrong that I did not go to Guiting till October, 1849. The two *Acis* were taken June, 1850. "I was younger then," and knew little or nothing about "rarities," &c., but now I know that I was fortunate enough, during the two summers of 1850-1, to capture eight *Acis* and eight *Arion*, both now in my comparatively small collection. I should like to take this opportunity of correcting two or three mistakes (owing to my ignorance) in my list. (1) *N. tritophus* = *zio-zac*; (2) *Chaonia* larvæ on oak not hazel; (3) *H. satura*, of course *adusta*.—J. GREENE, Rostrevor, Clifton, Bristol: April 4th, 1902.

The pupa of Sphinx convolvuli in England.—All Lepidopterists are aware of the unusual numbers of this insect last year, not only of the imago, but also of the larva, and occasionally the pupa; it is of this last that I write a few lines. In last year's "Entomologist," p. 295, appears a communication headed "*Sphinx convolvuli* pupa." I quote the following few lines from it:—"I have recently received a very fine living pupa of *S. convolvuli*, which was found by a person employed digging potatoes on the Sussex coast, on September 4th. This is the first living specimen I have seen found in this county. In searching through the 'Entomologist,' vol. i, to present date, I find only two pupæ are recorded as having been found, one on October 18th, 1876, and one October 31st, 1884.—F. W. FROHAWK, September, 1901." Mr. Frohawk is right as to the "Entomologist," but if he will refer to the already quoted vol. x of the "Zoologist," p. 3334, he will find under the heading "Search for Pupæ," "*Sphinx convolvuli*, &c."—JOSEPH GREENE, Lower Guiting, November 13th, 1851. The pupa produced a very fine specimen, and is now in my collection. I have always thought that this was the first pupa ever taken in this country.—ID.

Anosis Plexippus (Danais Archippus) in the Isle of Wight in 1896.—I cannot find any later record of *Danais Archippus* having been seen in England than that of October, 2nd, 1890, at Eastbourne, mentioned in "British Lepidoptera" by Mr. C. G. Barrett. It may be of interest to your readers to know that in August, 1896, my son and I saw a fine specimen of this insect on a bramble thicket quite close to the Newchurch Station of the Isle of Wight Central Railway. Unfortunately we were unable to capture it. There was, however, no question as to its identity.—H. W. S. WORSLEY-BENISON, 45, Woodberry Grove, Finsbury Park, N.: March 19th, 1902.

Phlogophora meticulosa, L., in December.—In volume ix, second series, of this Magazine, page 66, Mr. Eustace R. Bankes records the capture of a male of this species on December 18th, 1897. It may therefore be of interest to mention that I took a specimen, also a male, at rest on the wall of a roadside cottage here on December 9th last, during wintry weather. The moth is slightly faded, but otherwise is in good condition.—A. E. J. CARTER, 82, West Holmes Gardens, Musselburgh, N. B.: April 3rd, 1902.

Review.

A LIST OF THE HYMENOPTERA-ACULEATA SO FAR OBSERVED IN THE COUNTIES OF LANCASHIRE AND CHESHIRE, WITH NOTES ON THE HABITS OF THE GENERA; by WILLOUGHBY GARDNER, F.L.S., F.R.G.S., F.E.S. 8vo, pp. 1-61, 1901. Reprinted from Trans. Liverpool Biol. Soc., vol. xv, 1901.

This is a very well got up local list, to which is added a map showing the localities which have been collected in; from this map one realizes at once how little of these counties has really been worked for *Hymenoptera*, and there can be little doubt that the list will be largely extended when collectors can be found to visit the less known districts; at present 44 % of the total known British species have occurred, and amongst these is one species, *Calioxys mandibularis*, which has not been recorded from elsewhere. Mr. Gardner has added some particulars as to the habits of the British genera, which should encourage local Entomologists to study this much neglected branch of the subject.—E. S.

Obituary.

Prof. Carlos Berg, C.M.Z.S., F.E.S., Director of the National Museum at Buenos Ayres, died there on January 19th, after a long illness.* He was, we think, a native of the Russian Baltic Provinces, and before his emigration to South America he held the post of Librarian at Riga. At first his position in the Argentine Republic was subordinate, but just before the death of Burmeister, in 1892, he succeeded the latter as Director. Berg's studies embraced nearly the whole of the *Insecta*, and other Arthropods, and his work is generally considered sound and reliable. His geographical limits extended to the extreme south of South America, and included much that is interesting from Patagonia, Tierra del Fuego, Chili, &c. He revisited Europe on several occasions: we met him in London only a year or two ago. He joined the Entomological Society of London in 1882, and was elected a Corresponding Member of the Zoological Society in 1896. Entomology in Argentina has been fortunate in having had two such capable students as Burmeister and Berg; let us hope the death of the latter will not throw it back!

Societies.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *March 10th*, 1902. MR. ROBT. NEWSTEAD, A.L.S., F.E.S., in the Chair.

MR. E. WHITLEY, of "Clovelly," Sefton Park, Liverpool, and Oxford University, was elected a Member of the Society.

It was resolved that the next meeting be held in Liverpool on April 14th, and that Messrs. F. C. Thompson, F. Birch, and E. J. B. Sopp be appointed a sub-committee to examine and report on the condition of the Library of the Society at an early date.

A paper on "Organic Evolution," with lime-light views, was communicated by

* Another account says "suddenly on January 21st."

Mr. William Hewett, President of the York and District Naturalists' Society, who, whilst dealing very ably with the subject in general, also made special allusion to many points of peculiar interest to Entomologists, more particularly with respect to varieties in the *Lepidoptera*. An interesting discussion followed on the melanism of *Amphidasys betularia*, var. *Doubledayaria*, and other moths, in which the Chairman, Mr. J. Ray Hardy, of Owen's College, Dr. J. Cotton, Messrs. F. N. Pierce, B. H. Crabtree, G. O. Day, and others took part. On the motion of Mr. Pierce, seconded by Mr. E. J. B. Sopp, a hearty vote of thanks was accorded the lecturer for his paper. The fine display of exhibits included amongst others:—the drawing of an extraordinary abnormality in *Prionus californicus*, which was double in every limb, and a series of cases of *Coleoptera* by Mr. Ray Hardy; *Tryphæna interjecta* and *Noctua glareosa* and *brunnea*, &c., by Mr. R. Newstead, on behalf of Miss A. Steele Perkins, of Rhyl; bone variety of *Arotia plantaginis*, and var. *hospita*, by Mr. Harold Milne; *Orgyia pudibunda*, by Dr. J. Cotton and Mr. F. C. Thompson; *Abrazas grossulariata*, varieties, *Ephyra*, &c., by Mr. B. H. Crabtree; two rare Dutch volumes with coloured plates, by Sepp, and *Lepidoptera* varieties, by Mr. G. O. Day; varieties of *Arctia Caja*, by Mr. F. C. Johnson; *Arctia lubripeda*, *urtica*, &c., by Mr. Herbert Massey; *Dianthecia conspersa*, by Mr. F. N. Pierce; Perthshire *Coleoptera* and *Calioxys mandibularis*, a Hymenopteron new to the British list, by Mr. F. Birch; *Hemiptera* from Bolton, by Mr. Oscar Whitaker; *Anechura bipunctata*, an Armenian earwig, with the Caucasian variety, *orientalis*, by Mr. E. J. B. Sopp.—E. J. BURGESS SOPP, *Hon. Secretary*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
ANNUAL MEETING.—*March 13th*, 1902.—Mr. F. NOAD CLARK, President, in the Chair.

Mr. A. L. Rayward, of Wallington; Mr. B. Stonell, of Clapham; and Mr. S. P. Harry, of Clapham; were elected Members.

Dr. Chapman exhibited a number of species, which he was placing in the Society's Collections, including *Eupithecia consignata*, *Hyboma strigosa* and *Jochesera alni*, the first of which species was now only to be obtained in one very restricted private locality. Mr. Kemp, living larvæ and perfect insects of *Endomychus coceineus*, *Ptilinus pectinicornis*, and *Pyrochroa serraticornis*, the two former from Epping Forest, on hornbeam, and the latter from New Eltham, under moss. Messrs. Harrison and Main, specimens of the dark v. *nigrofulvata* of *Macaria liturata*, from Delamere Forest. Mr. F. M. B. Carr, a considerable number of specimens from the New Forest, including *Odonata*, *Ischnura pumilio*, female vars. of *Pyrrhosoma nymphula*, *Agrion mercuriale*, and *Gomphus vulgatissimus*: *Lepidoptera*, a large number of species, among which were *Aventia flexula*, *Lithosia helvola*, bred *Gnophria quadra*, *Nola strigula*, *Triphana subsequa*, *Heliothis dipasacus*, *Cleora glabraria*, bred *Cleora lichenaria*, *Selidosema plumaria*, and *Hyria auroraria*. Mr. Nottle, examples of *Agrotis tritici* and *A. agathina* from Keston. Mr. Barrett, a living specimen of *Nyssia hispidaria*, female, from Chingford. Mr. F. Noad Clark, two species of Tick, new to the British list. They were forwarded to him by Mr. Hewitt, of York, who found them upon Guillemots, on the Yorkshire cliffs. They had been identified as *Ixodes fimbriatus* and *Ixodes borealis*, both rare

and little known species. He also exhibited the common *Ixodes reduvius* for comparison, together with photographs of *I. fimbriatus*. Dr. Chapman, a living bred specimen of *Endromis versicolor*, and some pupæ, in the larva-cases of *Thyridopteryx ephemeriformis*. Mr. Edwards, very fine examples of *Ornithoptera Lydeus*, and *O. Socrates* from the Malays, with *Parnassius imperator* and *P. Horsleyanus* from Thibet. Mr. Turner, a long bred series of *Macroglossa stellatarum*, from larvæ obtained at Bromley, Kent, and contributed notes on breeding and habits of the larvæ. Mr. Lucas, a very large number of lantern slides to illustrate his remarks on "Entomological localities." They were chiefly of well-known spots in the New Forest. Mr. West, of Streatham, showed a few slides taken from several localities near London. —HY. J. TURNER. *Hon. Sec.*

ENTOMOLOGICAL SOCIETY OF LONDON: *March 5th*, 1902.—The Rev. Canon W. W. FOWLER, M.A., F.L.S., President, in the Chair.

Dr. B. Douglas Macdonald, M.D., of Malsette, Rhodesia, S. Africa; and Mr. Arthur M. Montgomery, of the Grove, Ealing, W.; were elected Fellows of the Society.

Mr. L. B. Prout exhibited on behalf of Mr. J. P. Mutch, of Hornsey Road, London, N., aberrations of *Vanessa (Eugonia) polychloros*, L., a ♀ bred by Mr. H. Baker from pupa from Stowmarket, Suffolk; a *Chrysophanus Phlaeas*, L. (captured in the Isle of Wight, August, 1901); *Agrotis puta*, Hb., a perfectly-halved gynandromorphous example, the right side ♂, the left side ♀, taken in August, 1901, in the Isle of Wight; and *Noctua sobrina*, Gn., an aberrant specimen with white antennæ and a somewhat hoary appearance on the fore-wings, taken in East Aberdeenshire, August, 1900. Mr. A. Bacot, a series of *Malacosoma castrensis* and a series of *M. neustria* for comparison with a hybrid brood, resulting from a pairing between a male *neustria* and a female *castrensis*, only a portion of the batch of from 200 to 300 ova that the female had hatched. The last of the females that eventually emerged was three weeks ahead of the first male, and most unfortunately before any males of either of the parent species, so that the fertility of the hybrid females could not be tested. Their bodies apparently contain few, if any, ova. Mr. Bacot said he had every reason to believe, however, that he obtained pairings between the hybrid males, and females of *castrensis*, in addition to fresh pairings between males of *neustria* and females of *castrensis*, and therefore had hopes of continuing the experiment next summer. Mr. J. W. Tutt remarked that this was the first time any exhibition of experiments of the kind had been made before the Society by British investigators, although Mr. Merrifield had shown a number of crosses bred by Herr Standfuss. In this case the colouring of the ♀ hybrids, departing from the usual colour of the ♀s of the parent species, appeared to approach more closely in tint the ♀s of the closely allied Alpine species, *Malacosoma alpicola*, and it would be interesting to discover whether this peculiarity of colour in the hybrid ♀s really marked a tendency to revert to a more primitive ♀ type of coloration, such for example as that exhibited by ♀ *M. alpicola*. The sexes, as exhibited, were very clearly distinguishable, and there was not much tendency to gynandromorphism, though of sixty or seventy specimens almost every ♀ showed some signs of ♂ coloration. A discussion of the relative preponderance of the sexes in gynandromorphous

forms followed, in which Canon Fowler, Col. Swinhoe, and the Rev. F. D. Morice joined. Mr. O. E. Janson, a pair of *Stephanorrates Dohertyi*, Jord., a Goliath beetle discovered by the late W. Doherty in the highlands of British East Africa. Dr. T. A. Chapman, cocoons of a *Limacodid* moth from La Plata, with empty pupa-cases of a Dipterous parasite of the genus *Systropus*, obtained from Herr Heyne, and to show the close resemblance there is between the two pupa-cases, he had placed with them some genuine Limacodid cases, with their cocoons. The resemblance is, however, not merely of appearance, but functional also. The moth-pupa, *i.e.*, the moth itself inside the pupa-case, almost certainly by inflating itself with air, to secure greater size and a stiffened epiderm as a basis of muscular action, exerts an end-to-end pressure within the cocoon, and so forces off a lid. It is here that the beak or "cocoon-opener" with which the pupa is armed is useful as determining that the fracture shall be at the right end, making the lid split off here, under much less pressure than would be efficient without it, and leaving no chance for fracture to occur at the wrong end where pressure is equally distributed. The *Systropus* breaks off a similar lid, no doubt by similar end-to-end pressure to that exerted by the moth, *Diptera* having highly developed the habit of inflating themselves with air, at emergence from the pupa. This pupa also has a beak very like that of the Limacodid, but even stronger and sharper. Dr. Chapman also exhibited a Bombyliid pupa-case from West Africa, very like that of some British forms, the head-armature of which is not a "cocoon-opener," but an excavating or navvying machine, for use in burrowing a way out of loose soil, such as solitary bees' nests are found in. The pupa of an African species of practically the same habits as this South American one, is described and figured in Professor Westwood's monograph of the genus *Systropus* in our Transactions for 1876. Mr. J. E. Collin, in further illustration of Dr. Chapman's remarks, exhibited specimens of: (a) *Systropus*, sp. ? from Buenos Ayres, parasitic on a Bombycid Lepidopteron (*Limacodes* ?). This he said was possibly the same as Dr. Chapman would have reared from his cocoons. The species was apparently undescribed, but most allied to *S. brasiliensis*, Meg. As Prof. Westwood noticed in 1876, the insect is very slender to inhabit so stout a pupa-case. (b) *Systropus*, sp. ? A large handsome undescribed species from Bigot's Collection. Professor Poulton introduced a paper by Mr. Guy A. K. Marshall, entitled "Five Years (1897-1901) observations and experiments in the Bionomics of South African insects, dealing especially with warning colours and mimicry, with Appendices, containing description of new species by Col. C. T. Bingham and W. L. Distant." The paper was illustrated by many photographs projected on the screen, showing groups of South African insects of many orders, collected by Mr. Marshall, each with a common type of warning coloration. Some of these groups included mimetic species of great interest. An important section of the paper contained the description of a long series of careful experiments conducted upon the chief Vertebrate and Invertebrate insect enemies of South Africa. The number of new facts is so large, the experiments so numerous and complete, the range of observation extended over so many orders, in addition to the much studied *Lepidoptera*, that this memoir places South Africa in the first rank as the country from which the chief evidence in support of existing theories of mimicry, warning colours, *etc.* has been supplied. Mr. Malcolm Burr, B.A., F.L.S.,

contributed "A monograph of the genus *Aerida*, with notes of some allied genera, and descriptions of new species." Dr. D. Sharp, F.R.S., communicated three papers by Mr. B. C. L. Perkins, respectively entitled: (a) "Notes on Hawaiian Wasps, with descriptions of new species"; (b) "Four new species and a new genus of parasitic Hymenoptera (*Ichneumonidae*) from the Hawaiian Islands"; and (c) "On the generic characters of Hawaiian *Crabronidae*; four new genera characterized."—H. ROWLAND-BROWN, *Hon. Secretary*.

ON THE ICHNEUMONIDES OF THE OLDER BRITISH AUTHORS.

BY CLAUDE MORLEY, F.E.S., &c.

Having recently had an opportunity of examining the types of our older authors contained in the British Collection in the British Museum, and thinking followers of strict priority may be interested in the synonymy of these "names," which personally, being a scientist before a patriot, I should prefer to obliterate, I herein set forth, to the best of my ability, the notes taken from these old specimens, and wish to thank Mr. W. F. Kirby, F.L.S., for his assistance and courtesy. Those species whose synonymy I consider established are printed in capitals.

The earliest author of note is Forster, who described (*Novæ Species Insectorum*, 1771) *ICHNEUMON PRIMATORIUS* = *I. grossorius*, Fab., 1792, and *ICHNEUMON (AMBLYTELES) ARMATORIUS* = *I. fasciatorius*, Fab., 1775; I refer to these only because Thomson (*Opusc. Ent.*) has seen fit to retain their Fabrician titles.

Kirby's description of *Ichneumon femorator* (*Mon. Apum Angliæ*, 1802, ii, 253) is inadequate, and the type is not in his collection in the British Museum; it is certainly referable to neither of Stephens' species of that name.

Curtis brought forward only two species of Ichneumonides in his *Brit. Ent.*, 1828. The first, *Ichneumon Atropos* is referable to *TROGUS EXALTATORIUS*, Panz., and not, as has hitherto been generally supposed, to *T. lutorius*, Fab.; what appears to be the type is, curiously enough, in the British Collection. The other species is *Alomyia victor*, which is nothing but *A. DEBELLATOR*, Fab., ♀, with the petiole red.

In Marshall's 1872 Catalogue the majority of Stephens' and Desvignes' species are placed alphabetically as doubtfully appertaining to the genus *Ichneumon*, and they have since proved little more than a nuisance to the student, for few of the descriptions are adequate for determination, and it were perhaps better to consign them to the

limbo of forgetfulness had not Berthoumieu, who is the only continental author who has attempted to synonymize these names, recently revived the subject in his *Mon. des Ichn. d'Europe*. Stephens may have transposed many of his types, not all of which are indicated; his collections were not received by the authorities till after his death in 1852. His specimens, which now all bear a small oval white label, include many from the collections of Francillon, Marsham, Haworth, Donovan, &c. He described thirty-three new species.

STEPHENS' "ILLUSTRATIONS OF BRITISH ENTOMOLOGY," VOL. vii, 1836.

P. 130—*I. nigerrimus*. This is a dark form of *Calichneumon lineator*, Fab., ♂, and is not, as was conjectured by Berth., doubtless on account of the narrowed areolet which, however, does not coalesce above, *C. bilineatus*, Gmel.

P. 131—*I. compunctor* = *I. cessator*, Müll., ♂. The description applies equally well to *Ctenichneumon camelinus*, Wesm., a species not yet recorded from Britain, though likely to occur here, but the ultimate ventral segment is not acuminate. The areola is transverse and the costulae incomplete, with the dentiparal areas transversely subcostate; the 3rd and 4th segments have the apical margin obscurely rufescent; the hind trochanters are basally, not apically, black; and the stigma is piceous.

P. 131—*I. rufipes*, ♂ ♀, = *Eurylabus ruficornis*, Berth., Rev. sc. Bourb., 1894; Ann. Soc. Fr., 1896, p. 309, ♂. Marshall was in error in referring the ♀ of this species to *E. torvus*, Wesm.; the metathoracic apophyses are tuberculiform and subobsolete in both sexes. The notauli are distinct and the pale dot before the radix soon fades. I have taken ♂♂ on flowers of *Angelica sylvestris* in a damp situation near Lyndhurst, Hants, in August. This species must stand:—*EURYLABUS RUFIPES*, Steph. (1835), = *E. ruficornis*, Berth. (1894).

P. 133—*I. maculifrons* = *CRATICHNEUMON FABRICATOR*, Fab., ♂.

P. 136—*I. maculicornis* = *Phaogenes scutellaris*, Wesm., Nouv. Mém. Ac. Brux., 1844, p. 183, &c., ♀. This species should stand:—*PHÆOGENES MACULICORNIS*, Steph. (1835), = *P. scutellaris*, Wesm. (1844).

P. 139—*I. cognatus*. No type is indicated in the Stephensian collection, but the description leaves little doubt that the ♂, and probably the ♀ also, as pointed out by Berthoumieu = *Amblyteles subsericans*, Grav.

P. 140—*I. crassicornis*. This ♂ appears referable to *Probolus concinnus*, Wesm., Bul. Ac. Brux., 1853, p. 303, but, since I have seen no ♂ of this species which I brought forward as new to Britain at p. 54 *ante*, the synonymy must for the present remain uncertain.

P. 142—*I. femorator* = *PROBOLUS ALTICOLA*, Grav., ♂.

P. 144—*I. fulvipes*. Referred by authors to *CRATICHNEUMON FABRICATOR*, Fab., ♂; the type is not indicated.

P. 144—*I. albifrons* = *CRATICHNEUMON FABRICATOR*, Fab., var. *Ichnemon impugnator*, Wesm., Nouv. Mém. Ac. Brux., 1844, p. 72, ♂. It is not *Calichneumon crotatus*, Grav.

P. 147—*I. binotatus*. The type is not indicated; the description strongly recalls *Cælichneumon leucocerus*, Grav., ♂; I do not think it can be *Melanichneumon leucomelas*, Gmel.

P. 154—*I. bipunctorius*. No doubt remains from the description that this is the ♂ of *MELANICHNEUMON LEUCOMELAS*, Gmel., with immaculate hind tarsi; the type is not indicated.

P. 157—*I. cingulipes* = *AMBLYTELES ORATORIUS*, Fab., var. *bipunctus*, Berth., Ann. Soc. Fr., 1895, p. 650, ♀. It is not *Ichneumon deliratorius*, Linn.; the ♂, however, is not indicated.

P. 158—*I. microcephalus*. There is one ♂ in the Stephensian collection which appears to be a good species; at all events I fail to recognise it, and refer it tentatively to *Amblyteles* (*sensu* Thoms.), in which it appears related to *A. quadripunctorius*, Müll., but differs therefrom in the absence of an apical process in the ultimate ventral segment. Perhaps the following brief description will lead to the discovery of its true position:—Head small, transverse, narrowed behind the prominent eyes, evenly punctate, dull, black; clypeus truncate, not separated from face; mandibles bidentate, piceous; palpi ferrugineous; facial orbits narrowly flavous. Antennæ black, flavous-banded. Thorax normal, black; metathorax rugose, costæ strong; areola slightly transverse, apically emarginate; costulæ wanting; petiolar area tridivided; spiracles elongate. Scutellum flat, punctate, shining, dull flavous. Abdomen broad, subovate, apically obtuse, black; postpetiole and base of 2nd segment centrally striolate; 1st segment suddenly explanate, with very prominent spiracles; gastrocæli small, striate; incisures narrowly aciculate; segments 5, 6 and 7 with dorsal flavous marks, that on 6th being the largest and longitudinal; ventral segments 2-4 plicate. Legs normal, piceous; femora and coxæ darker; apices of front femora dull flavous. Wings infumato-hyaline; tegulæ black; nervures and stigma fulvous; areolet small, subtriangular.

P. 162—*I. fulvoscutellatus*. No type is indicated; probably this is *Ichneumon terminatorius*, Grav., ♀, or near it.

P. 163—*I. quadrinotatus* = *ICHNEUMON GRACILICORNIS*, Grav., ♀.

P. 166—*I. concinnatorius*. The type is not indicated, but no doubt, I think, can remain that Berthoumieu is correct in ascribing this species to *I. TERMINATORIUS*, Grav., ♀.

P. 173—*I. dimidiatus* = *AMBLYTELES PALLIDICORNIS*, Grav., ♀.

P. 175—*I. diversorius*. This is rightly ascribed by authors to *AMBLYTELES ARMATORIUS*, Forst., ♀.

P. 177—*I. triangulator*. This is rightly ascribed by authors to *AMBLYTELES TRIFASCIATUS*, Grav., ♂ (*nec* ♀).

P. 186—*I. eximius*. Type not indicated; the description, I think, applies better to *Cælichneumon cretatus*, Grav., than to *Amblyteles glaucatorius*, Fab., of which Berthoumieu considers it a synonym.

P. 188—*I. erythrogaster* = *Ichneumon Coqueberti*, Wesm., Bul. Ac. Brux., 1848, pp. 144, 335; &c., ♀. The type was taken by Rev. J. Burrell in Norfolk. This species should stand:—*PROTICHNEUMON ERYTHROGASTER*, Steph. (1835), = *I. Coqueberti*, Wesm. (1848), = *P. Jesperi*, Thoms. O. E., xviii, 1900 (part.).

P. 195—*I. melanopyrrhus*. The type is not indicated, but no doubt can exist that this is *CÆLICHNEUMON CASTANEIVENTRIS*, Grav., var. *subniger*, Berth., Ann. Soc. Fr., 1894, p. 558, ♂.

P. 197—*I. castanopyga*. This is recognised as *AMBLYTELES CASTANOPYGUS*, Steph., = *A. rubriventris*, Weism. (1854). The lower mandibular tooth is very small, subobsolete, as in *A. equitatorius*, Panz.; the cheeks are aciculate punctate; the labrum of the ♂ is laterally white; the metathoracic apophyses are much stronger in the ♂; the postpetiole of the ♀ is finely aciculate, of ♂ subrugose, throughout, with its apex centrally elevated and glabrous; the gastrocæli are somewhat deep and striate, though small.

P. 198—*I. pyrrhopus*. The type is not indicated, but authors are undoubtedly correct in ascribing this species to *CRATICHNEUMON FUGITIVUS*, Grav., ♂.

P. 199—*I. gasterator*. This is not a good species as was for some time held; it has the facies of *Microcryptus abdominator*, Grav., but is a true Ichneumonid. Holmgren's reference to the Cryptid facies of *Craticheumon fugitivus*, Grav., ♀, led me to compare it therewith, but the coxæ are distinctly scopuliferous, and no doubt remains that it is *C. CORUSCATOR*, Linn., ♀.

P. 200—*I. femorator* = *COLPOGNATHUS CELEATOR*, Grav., ♀.

P. 201—*I. rufator*. Placed among *I. latrator*, Fab., in Stephens' collection; it is a ♂ *Phaogenes*.

P. 202—*I. abdominator*. Type not indicated.

P. 204—*I. picipes*. Type not indicated.

P. 206—*I. ruficollis*. The type is not indicated, but it has been referred by Bridgman (Entom., 1882, p. 139), followed by Berthoumieu, to *I. SANGUINATOR*, Rossi.

P. 207—*I. rufescens*. This is rightly ascribed by authors to *STENICHNEUMON PICTUS*, Grav., ♀.

P. 271—*Trogus atrocaudatus*. I consider this species, of which no type is indicated, as more probably referable to *T. EXALTATORIUS*, Panz., than to *T. latorius*, Fab.

P. 272—*Trogus dissimulator*. The type is not indicated, but the description appears to differ from that of *Ichneumon bisignatus*, Grav., only in the immaculate coxæ and flavous vertical orbits.

P. 274—*Alomyia semiflava* = *A. DEBELLATOR*, Fab., ♀.

Haliday described *Ichneumon phaleratus* in Ann. Nat. Hist., 1839, p. 112, but I know nothing, beyond its original description, of this striking species, which rather recalls a ♂ Cryptid than an Ichneumonid. Berthoumieu places it, as insufficiently described, in the genus *Platylabus*. I learn from the Director of the Dublin Science and Art Museum that the type is probably still extant in Haliday's collection through, since no labels are affixed, he is unable to indicate it.*

* Since the above was printed, the Rev. T. A. Marshall has kindly drawn my attention to the identity of Haliday's description with that of *Platylabus leucogrammus*, Weism. Bul. Ac. Brux., 1863, p. 216; Holmgr., Thoms., &c.; and, although the former is short, I think it sufficient, remembering its author's accuracy, to justify the conclusion:—*PLATYLABUS PHALERATUS*, Hal. (1839) = *P. leucogrammus*, auctt.—C. M.

Ichneumon paludator, described by Deavignes in Trans. Ent. Soc. Lond.,* 1854, p. 44, is rightly ascribed by authors to *I. QUÆSITORIUS*, Linn. Fifteen species are described in

DESIGNES' "CATALOGUE OF BRITISH ICHNEUMONIDÆ IN THE BRITISH MUSEUM," 1856.

P. 5—*I. maculiventris*. This is *CTENICHNEUMON CÆRULEATOR*, Zett., ♀, from the type form of which it differs only in having the areola subquadrate; the palpi, frontal orbits and lateral circular dots on the clypeus, flavous. The space between the gastrocæli is as broad as the central of the accidentally impressed postpetiole; the abdomen is dull with the 4th and 5th segments nitidulous; the wings and venter are flavidous, the latter being broadly fuscous marked. This specimen is from Stephens' collection, and bears a label "*fasciatus*" in his handwriting.

P. 5—*I. obator*. This is rightly ascribed by Berthoumieu to *PLATYLABUS PREDATORIUS*, ♂, Fab.

P. 10—*I. crassorius*. This is rightly ascribed by Marshall to *ICHNEUMON INQUINATUS*, Wesm., ♂ ♀.

P. 11—*I. relucens* = *AMBLYTELES INDOCILIS*, Wesm., ♀. This species has recently been recorded as new to Britain in Ann. Scot. Nat. Hist., January, 1902.

P. 15—*I. cubicularis*, ♂ ♀. This is *SPILICHNEUMON FABRICII*, Grav., of which the ♂ is unknown. The broad gastrocæli of this ♂ appear to ally it strongly with species of *Ctenichneumon*, but its large apical, and plicate 4th, ventral segments justify its position in the former genus. It is closely allied to *Amblyteles truncicola*, Thoms., Ann. Soc. Fr., 1888, p. 115, but differs primarily therefrom in the larger gastrocæli, complete metanotal area, immaculate scape, &c.

P. 18—*I. LAUTATORIUS*. This is a good species, allied to but abundantly distinct from *Ichneumon sarcitorius*, Linn. The ♀ may at once be known by the unicolorous bright fulvous basal flagellar joints, the remainder being abruptly deep black above; by its paler legs, prominent eyes, subobsolete femoral band, deeper and more coarsely striolate gastrocæli, flavous markings and more ample flavescent wings; from *Amblyteles pallidicornis*, Grav., it differs, beyond the generic characters, in its immaculate 7th segment, &c. The abdominal coloration of the ♂ appears to be quite unlike that of *I. sarcitorius*, Linn. It is also larger, varying from 13—15 mm. Desvignes described it from specimens in Curtis' collection, and the types are consequently probably in the Victorian National Museum in Melbourne. I have not seen the ♂, but the ♀ was taken on the coast of Suffolk (where Curtis often collected) in 1898; and there was another, mixed with *I. sarcitorius*, in the British Museum labelled "Whittlesea Mere; H. Squire; named by Desvignes," probably before he detected its distinctness. There are two ♀ ♀ *Ichneumons* in the General Collection from Nova Scotia and New York which differ from the above species only in having the 5th and 7th segments also pale banded and the internal orbits red.

P. 19—*I. ancipiterus*. This ♂ is certainly very closely allied to, and perhaps identical with, *Amblyteles unidentatus*, Berth., Rev. Sc. Bourb., 1894; Ann. Soc. Fr., 1895, p. 602.

* Desvignes is also said to have described *Ichneumon crassicornis* in the Trans. Ent. Soc. Lond.; this Berthoumieu synonymises with *Protichneumon pisorius*, Linn., ♀; I know nothing of it.—C. M.

P. 20—*I. dubitatus*. Much resembles *Amblyteles palliatorius*, Grav., ♂, in structure, and the metathoracic apophyses are identical, but the antennæ are longer, the postpetiole more gradually explanate from base to apex; the face is centrally black marked, and the general colour-scheme unlike that found in even so protean a species as the above. It is most probably a colour variety of *A. trifasciatus*, Grav.

P. 22—*I. flavocinctus*. This is recognised as *CTENICHNEUMON FLAVOCINCTUS*, Desv., though Berthoumieu overlooking Bridgman's description of its sculpture (Trans. Ent. Soc. Lond., 1881, p. 145), does not tabulate it; it appears to be allied to *Amblyteles albomarginatus*, Kriech. (cf. Ann. Soc. Fr., 1895, p. 622, et 1896, p. 289); and indeed I believe these species to be identical; the ♀ is still unknown.

P. 22—*I. minorius*. This appears to be, or to be closely allied to, *Ichneumon gradarius*, Wesm., ♂, a species with which I am not sufficiently familiar to express a definite opinion, nor am I aware of the latter's occurrence in Britain.

P. 23—*I. binotatus* = *CRATICHNEUMON OOBUSCATOR*, Linn., var. *luridus*, Grav., ♂.

P. 25—*I. niveatus*. This is the ♂ of some Cryptid, and Desvignes himself has labelled his types "probably *Phygadeuon arridens*."

P. 25—*I. cinctorius*. Probably a good species, allied to *Amblyteles uniguttatus*, Grav., var. *Goedarti*, Grav., ♂, but with the apophyses tuberculiform.

P. 29—*I. rubedinis* = *ICHNEUMON VULNERATORIUS*, Zett., ♀; it is not *Stenichneumon ochropis*, Gmel.

P. 50—*HOPLISMENUS SEMIRUFUS*. A good species closely allied to *Platylabus Stålîi*, Holmgr., but differing in its entire petiolar area, scabrous postpetiole, basally broadly red abdomen and white marked front legs, by which points it may also be known from *P. albinus*, Grav.* The production of the 5th ventral segment, noted by Desvignes, is accidental.

Desvignes also described, in Ent. Mo. Mag., 1867, p. 130, *Ichneumon cambrensis* = *Limerodes cambrensis*, Bridg. and Fitch, Entom., 1881, p. 60, = *PHŒOGENES STIPATOR*, Wesm. (1855), ♂. Berthoumieu has rightly ascribed this species to *P. stipator*, Wesm., which was recorded as new to Britain under the name *P. cicutella*, Sieb., by Bridgman in 1884. The two ♂♂ described by Desvignes are in the British Collection.

Ipswich: *March*, 1902.

FURTHER NOTES ON SOUTH AFRICAN LEPIDOPTERA.

BY FRANCES BARRETT; EDITED BY C. G. BARRETT, F.E.S.

(Continued from Vol. 37, p. 289).

Apisa canescens, Walk.—"This moth is from the chrysalis of a caterpillar found in an ant hill in the garden by the boys. They found two, but one died; they were of an unhealthy drab colour, with scattered hairs.

* Even though Thomson has not pointed out that Gravenhorst's description of *Hopl. errandus*, which obviously differed from the type examined by Wesmael, could not stand for this species, since he writes of the apical "dorso albis" = "stor fläck," the latter's *H. albinus* must have taken precedence.—C. M.

[The moth is very curiously formed ; its antennæ long, pectinated, dull white ; body also long and similarly coloured, but the head and thorax smoky-black ; fore-wings long and rather narrow, the hind-wings almost absurdly small and effete, their neuration being limited to veins 1, 3, 4, 5 and 6. It is not a very uncommon species, coming to light at a window at night, the female is scarce, sluggish, broader, and very similar. The head of the larva (to judge by the dried up carcase) is glistening brown, the mouth black, the antennal papillæ two jointed and *looking* telescopic ; the hairs of the second segment project forward round the head, and those of the next two segments are long and curved also forward ; the rest of the body is clothed with shorter hairs ; apparently unicolorous, except a slender white spiracular line. The warts on the body from which the hairs spring are very noticeable, raised and black. The whole appearance of this species is rather abnormal, and the discovery of *two* larvæ in *one* ant hill may point to some unusual habit of the creature, or may have been quite accidental. The pupa is stout yet rather elongated in the abdominal portion, the wing and limb covers moderately glossy, compact, very finely granulated ; the segments more shining, yet rather closely covered with extremely short hairs, which are so fine as to be only visible under a good lens ; the anal segment fully rounded, without projection, but furnished with a thickened mass of short bristles, which are hooked. The cocoon is extremely slight, composed of loose, thin, soft silk. It is evident that this species requires careful working out. The present imperfect details may possibly furnish some clue].

Rigema ornata, Walk.—“ My brother found a female moth in November, and kept it for me while I was away on a visit. On opening the box we found that eggs had been laid—such pretty pink eggs with a depression at the top ; they turned quite blue before hatching. The caterpillars at first were little black dots, which hung themselves by a thread, or scrambled so about the place that I found them all over the work-table, just escaped from the glass which held the eggs. We had no clue to the food, so tried vine, willow, *Mimosa*, and a river side tree which gets a good deal perforated. They have taken to the latter, after wandering over the vine leaves and tasting the willow.”

[Later]. “ I am much disappointed ; all these have died. I cannot say whether it was caused by unsuitable food, or by thunder storms which occurred at the time. The larvæ became damp and then pined away. However, Harry found one full grown, a most lovely delicate looking larva, on coarse grass by the river side. Of this one I send two figures, and have enclosed the shells of the eggs.”

[This is, in its various stages, a beautiful creature. The moth has long creamy-yellow fore-wings, with a longitudinal central stripe of purple, and from this to the costa a succession of parallel purple lines ; the hind-wings white. The larva is well worthy of the admiration bestowed upon it ; the head orange-red, with the triangular face white ; the whole dorsal region bluish-white down to the spiracular stripe, which is broad, orange-red or purple-red, bounded underneath by a bluish-slate stripe, and this by white ; legs and prolegs purple-red ; hairs arranged singly in a double row on each side, spatulate—the slender black hair becoming suddenly broadened or spoon-shaped at the tip. On each side of the head is a slender pencil or tuft of six such hairs of various lengths, looking like a long antenna divided into *spatulate* branches. Pupa of ordinary form, not very stout, dark purple-red, dull

from minute wrinkled and pitted sculpture. Cremaster very short, flattened, broad, and divided into four conical points. Apparently without cocoon in the earth].

Dulichia fasciata, Walk.—“This species is found sitting on grass or low bushes, and on the trees by day and also at night, particularly the latter, and if disturbed will often dash down to the ground and try to hide itself in the dirt under the trees, so that it is necessary to secure it by hand. I found some of the caterpillars when small on the trunk of a black wattle at Nggeleni; they fed by preference on apricot, but were tender, and many died off.”

[The moth is a pretty creature, pale ochreous, the fore-wings having an orange central band dotted and dusted with grey-black. The larva has a broad grey-black hairy head, the anterior segments and the sides greyish-white, with a large purple-brown or chocolate hump on the third and fourth segments, and behind this a broad similar dorsal stripe; on the twelfth segment is a thick, short, upright tuft of black hairs, and long tufts of greyish-white hairs spread widely on either side of the body, the dorsal region being thickly covered with shorter hairs. Pupa short and thick, limb and wing covers chocolate-brown wrinkled all over with cross sculpture; segments finely pitted, but sharply ridged at their edges, and thinly clothed with fine short hairs; cremaster long, thick and conical, having a tuft of spreading hooks at the tip].

Orgyia bistigmigera, Butl.—“This was the result of a hastily put-aside lot of small caterpillars brought in one day from the garden by one of the girls. This one spun up at once. I remember it as reddish-black with short black hairs, three quarters of an inch long. I believe that it was found on lucerne. The black antennæ of the moth are curious and striking.”

[Otherwise the moth is not remarkable—a small *Orgyia*, dull ochreous, with two black dots placed perpendicularly as a discal spot on the fore-wings, and a broad dull black border to the hind-wings. The pupa is short, very glossy, chestnut-red, the whole dorsal surface from the front of the head is thickly set with upstanding pale yellow hairs, which are especially thick on the abdominal segments; cremaster an elongated conical spike, with a bunch of hooked bristles at the tip. In a soft thin cocoon of silk and larval hairs, among leaves].

Taniopyga sylvana, Walk.—“The caterpillar is two inches long, smooth, yellow, with light chocolate bands round the segments. I found two of them feeding by day, and was much amused, because, when only a little bit of blossom remained, the smaller and livelier caterpillar bit and pinched the larger one and made it move on, and then went on to eat, but the other came back to the charge and was again pinched, until I thought it well to separate them. The plant is what the people here call yellow snowdrop. It is an upright plant with green and yellow blossoms, not very pretty, but it is attractive also to the lovely little *Eretmocera latissima*. The moth was reared in January; I send the pupa; the cocoon was of sand and very brittle.”

[The larva is figured both crawling and when rolled up in a complete coil. The head is chocolate-red; the band round the hinder portion of each segment is rather broad, and in the full grown larva rather deep chocolate; at the back of the eleventh segment the dark band is narrower and pushed more forward to make room for two

large orange blotches placed as another band; anal extremity bright orange; legs black, prolegs orange-red. A really handsome and striking creature. Pupa smooth and shining, dark red-brown, with little sculpture, but the abdominal segments strongly ridged behind; cremaster thick, somewhat conical, and armed with two short hooks. The moth is a creature of quite remarkable loveliness, shining white, the fore-wings shaded with silvery-grey or pale silvery-buff, and barred with thick black lines; the discal spot brilliant scarlet; down the back of the thorax are three pairs of orange spots, and there is an orange band on each abdominal segment].

Cucullia (several species).—"Edward has been making a garden beyond the river, in a wilderness of trees and bushes, away from the fowls. We cross the river by stepping stones from our shrubbery and climb a steep bank to reach it. It is a pretty place, but not so easy of access for night hunting. One night he said that he had seen hawk-moths there at the blossoms of some broad beans which had been planted, so I took over a net and secured a few; but my most satisfactory captures were some silvery and whitish moths that haunted the bean flowers just as darkness fell. There are several of what I call the 'silver splash' (*Cucullia Hutchinsoni*, Hpsn.), and a darker kind much like it in habits (*C. extricata*, Walk.), which have given us much pleasure. I have been over there many evenings, counting the effort quite worth while if I brought back one or two. They are timid and dash off, so that I have to go away and wait before they will come back. I hunted those beans thoroughly till the moths got quite shy, and I had to divide my time between these and the peach trees which were in blossom, around which the large Silver Y's (*Plusia circumflexa*, L.) were abundant, and the American pests (*Heliothis armigera*, L.) were most insistent. The moths at the bean flowers begin to fly at dusk, when you can just see the movement at the blossoms, but I do not think that they feed late. With the exception of a few pods for seed this was the only crop that we had from the beans; the drought affected them, and then the 'cocos' beetles came and cleared off the blossoms! I caught one or two of the 'silver splashed' (*C. Hutchinsoni*) also at the fruit blossom, but I think none of the darker species (*C. extricata*). There were some dark ones with a silver splash (*C. pallidistria*, Feld.) which gave us great delight. These only lasted for a week or two, but I still get sometimes a silver splash. Orange, lemon and 'nautje' furnish this, and *C. consimilis*, Feld., *C. africana*, Auriv., *C. chrysota*, Hpsn., and *C. terensis*, Feld., all rarely; one or two have come to the flower we call honeysuckle, and also to the wild cotton plant."

Plusia exquisita, Feld.—"This beautiful species was hovering at the bean blossom, but I have caught more at blossoming orange, lemon and nautje trees on a very damp evening. The favourite is the nautje, which blossoms all over, and seems sweeter than the orange or lemon; its fruit is flattish orange-shaped, with a very thin, bitter skin, but the inside juicy and very sweet."

Plusia circumflexa, L.—"E. brought me a common smooth green caterpillar feeding on lettuce. It quickly spun up and speedily came out."

[This species appears quite to take the place, in South Africa, of our commonest species, *P. gamma*. The pupa sent is very dull black, short and thick, the tongue case prominent but curved down under the abdominal segments; cremaster consisting merely of two short, thick, hooked spikes.]

Plusia permissa, Walk.—"Several larvæ were found on a very delicate feathery

plant, apparently an asparagus, and were reared. This, and some other *Plusia*, and *Hadena renisigma* buzz around the large sunflower (*Helianthus*) blossoms commonly at dusk. They are very lively, and netting them about these heavy flowers feels like hitting at a plate."

[This is a much smaller and more blunt-winged species, having on its fore-wings a small and slender silver Y. The pupa skins sent are very smooth, rather shining, the tongue projection small, the lower surface semi-transparent white, indicating that the wing and limb covers were, in the living pupa, bright green; the dorsal surface dark umbreous, shading off at the sides, but on the thoracic portion showing curious markings like the head and claws of a beetle larva; cremaster thick, strongly projecting, black-brown, armed with a tuft of hooked bristles which cling tightly to the cocoon. The latter is light coloured, loose, silken, spun up among the fine twigs of the plant].

Plusia limbirena, Gn.—"The bright green caterpillar with a fine white line down the back fed on a creeper which grows round the fern stump in the verandah (*Tradescantia*?). It changes more rapidly than any other chrysalis that I get."

[This is another of the "*gamma*" group; its fore-wings dark bronzy-brown, with a bright golden gloss, the Y pale golden, slender, and sharply defined; the hind-wings dark grey-brown; the thoracic crest short and blunt. Pupa thin skinned, glossy, with very faint wrinkled sculpture, brown, more black-brown on the back, the dorsal shield having a still blacker horse-shoe shaped mark; cremaster short but broad, spud-shaped, furnished with minute hooked bristles. In a thin, fine, loose cocoon of dull white silk, among leaves or any convenient materials].

Trigonodes obtans, Walk.—"I have labelled these 'common nuisance.' They seem to insist on being caught, and look so promising, flying in the dim light, that one is constantly induced to run after them. I believe that they frequent every flowering tree that has honey, and they particularly love aloe flowers. In these flowers the honey is so abundant that children break off the aloe stems to get at it. I once caught my girl with a lot of the thin watery honey in a tin basin; she had broken off the aloe blossoms on which I had prided myself—beautiful scarlet aloes all round the front of the house—and was going to drink the honey which she had drained from them. I fancy that moths find it rather intoxicating, more so than peach honey, for when disturbed the heavy ones fall down among the thorny spikes of leaves and are lost, unless I can catch them by putting the net underneath, but woe to the poor net, the thorns are hooked all along the edges of the fleshy leaves. From peach or apricot blossom the moths fly away briskly."

Eurhipia adalatrix, Hüb.—This pretty moth I found by day on a *Begonia* blossom; so queerly settled, with wings clasped closely down, fore-legs rather visibly put forward, and the abdomen curled up, that I thought, until I looked closely at it, that it was a little faded flower."

Eriopus Latreillii, Dup.—These moths are reared from some caterpillars that I found on the fern stump; they were smooth, not hairy, bright brown, with a fine light yellow line along each side, and a fainter dorsal line formed of yellow and black markings. I send cocoons."

[These cocoons are soft and slight, composed of thin brown silk. The enclosed pupa short, broad and slightly flattened, extremely glossy, but almost without

sculpture, light red-brown, the eyes and dorsal segments rather darker; cremaster hardly noticeable, except for a small tuft of fine bristles].

Achaea Lienardi.—"I have another thing which will, I think, be of interest—the smaller kind of fruit destroyer with its chrysalis and a drawing of its larva. The food plant is rose; this is what we found the larvæ upon, but they also ate mimosa."

[The larva as figured is elongated and in form much like those of the *Catocala*. The head very round, brown edged with black; body dull umbreous with an angulated black spot on the fifth segment, and two black-brown pointed humps on the twelfth; anal segment tipped with black; and a black stripe runs along the whole under-surface in the middle; legs brown. The younger larva is blacker, more slender, and the humps on the twelfth segment are in proportion larger. Pupa rather long, tapering regularly off behind, more like that of a large *Geometra* than a *Noctua*, smooth and with only minute dotted sculpture on the abdominal segments; anal segment longitudinally ribbed and wrinkled in a very singular manner; cremaster only a small bundle of tiny hooked bristles; whole surface purple-red covered with a fine thin whitish bloom. In a slight silken cocoon among its food].

Some further information being asked for with reference to the fruit destroying habits of this and other species, calling attention to Mr. G. A. K. Marshall's note (Ent. Mo. Mag., 2nd series, vol. ii, p. 207)—

"I did not reply to your enquiry about the fruit-moth. I feel certain that it pierces the figs, there being a fine pin-prick spot where it has been sucking, and also that it damages the peaches. They do not all have maggots, though many do, doubtless produced by flies. I kept some of the pierced peaches for a considerable time to see what came of it, but could find no proceeds. I cannot prove anything, so will let the matter drop for the present, only it is a settled conviction out here that the fruit is damaged by moths, and I think with sound reason. This last season we had the smaller fruit-moth (*A. Lienardi*) in such multitudes that they sprung up all along, as one walked among the bushes or shook a tree; and they settled so thickly upon the peaches before they were fully ripe, even by daylight, that one could go and pick out the scarcer varieties, this being one of the most variable of moths. At the same time we could scarcely find a sound peach; the crop was quite a failure. The large fruit-moths (*Sphingomorpha chlorea*) come at night, and smaller species without number; also wasps, flies and beetles in the daytime; but it was the lesser fruit-moths (*A. Lienardi*) that were the chief raiders this season. Sometimes one side of a fig becomes porous like a sponge, as if all the moisture were sucked away. Do not imagine that it annoys me to be contradicted. I only want the truth, and fuller knowledge. I know far too little to be an authority."

Two months later.—"We had a visitor the other day—a lady who has told me many interesting things about insects which she has noticed in going about the Colony. I was asking her about the fruit moth, she having told me before of the clouds and flocks of them which she had come across in the open veldt. I asked her whether she was sure that they damaged the fruit, suggesting flies as the possible depredators, or at any rate as the beginners of the mischief. She said she *was perfectly sure* that the moths did it, and instanced that they had some par-

ticularly fine apples sent from a distance, which would take days, if not weeks, on the road. These were placed on a table in the room. Presently she noticed a large specimen of the smaller fruit-moth (*A. Lienardi*) settle upon the very finest apple, and pierce it with its long trunk (just as I have previously described to you), feasting away with great content. If this apple had been previously fly-damaged it would certainly have begun to decay, since fruit when injured does not keep long in this climate. A day or two will finish it. My visitor has promised to notice more particularly the causes of damage to the fruit in future.'

[It seems clear to me that my correspondent has doubly established her point. If, as here appears, an excessive abundance of the moths which feed on the fruit is accompanied by a complete destruction of the crop, it seems evident that the moths *cause* that destruction, unless it can be shown that the unusual increase in numbers of moths is accompanied by an equally abnormal abundance of the Dipterous peach-fly.]

AN ANNOTATED LIST OF *NEUROPTERA-PLANIPENNIA*
COLLECTED IN CENTRAL SPAIN
BY DR. T. A. CHAPMAN AND MR. G. C. CHAMPION IN JULY
AND AUGUST, 1901.

BY ROBERT McLACHLAN, F.R.S., &c.

During their journey in Central Spain in 1901, Messrs. Chapman and Champion got together a very considerable lot of *Neuroptera* (in the broad sense), and of much interest, for although there is not much absolutely new to record, little, if anything, has been published on the species inhabiting the region visited. I propose here to deal with the *Planipennia* (also in the broad sense).

PANORPIDÆ.

PANORPA MERIDIONALIS, Ramb. Tragacete, 2 ♂, 3 ♀, T. A. C., G. C. C. I have elsewhere more than once remarked that examples from the Iberian Peninsula are smaller than those from the French Pyrenees.

RHAPHIDIIDÆ.

RHAPHIDIA MACULICOLLIS, Steph. ♀ One damaged ♀ from Bronchales, G. C. C., remains somewhat doubtful. The distinctions between *R. maculicollis* and *R. batica*, Ramb., are not always very clear.

MYRMELEONIDÆ.

PALPARES HISPANUS, Hag. Cuenca, several, T. A. C., G. C. C. I have before me about sixty examples of *P. hispanus* from the Iberian Peninsula and Algeria. They retain their distinctive characters, slight though they be, in a marked degree, and vary very little either in size or markings; whereas *P. libelluloides* is strongly variable, and as one proceeds eastwards resolves itself into forms that may be sub-specific to say the least. There is no evidence that *P. libelluloides* occurs in the regions inhabited by *P. hispanus* and *vice versa*. That one is representative of the other is undoubted, but they are permanently distinct.

CREAGRIS PLUMBEUS, Oliv. Cuenca, Puerto de Losilla, Albarracin, 4 ♀, T. A. C.

MYRMECÆLURUS TRIGRAMMUS, Pallas. Cuenca, 3 ♂, T. A. C.

MACRONEMURUS APPENDICULATUS, Latr. Tragacete, Puerto de Losilla, Albarracin, 5 ♀, T. A. C.

MYRMELEON NEMAUSIENSIS, Bork. Cuenca, 1 example, T. A. C.

MYRMELEON FORMICARIUS, L., McL. (*formicalynx*, Auct.). Bronchales, 1 ♀, T. A. C.; Tragacete, 1 ♀, G. C. C.

ASCALAPHIDÆ.

BUBOPSIS AGEIODES, Ramb. Cuenca, 1 ♂, T. A. C.

ASCALAPHUS LONGICORNIS, L. Tragacete, 3 ♀, T. A. C.; Guadalaviar, 1 ♂, 1 ♀, G. C. C. Large and brightly coloured; in the hind-wings the pale apical space is broadly margined with black on the inner margin.

MANTISPIDÆ.

MANTISPA PERLA, Pallas (*sec. auct.*). Tragacete, 7 examples, chiefly by beating pine trees, T. A. C., G. C. C. A variety from Albarracin, G. C. C. These examples vary much in size; the wings are (the variety excepted) strongly tinted; and the black marking on the anterior dilated portion of the pronotum is divided into four portions by a cruciate pale line, much as in the figure by Costa in his Faun. reg. Napoli. In examples from South Dalmatia and Sarepta in my collection the wings are equally tinted, but the line on the anterior portion of the pronotum is not cruciate, hence the division of the black into four parts is not distinct. Ed. Pictet, Névrop. d'Espagne, describes and figures a var. *icterica* from San Ildefonso, in which the wings seem not to be tinted, but the black pronotal anterior markings are cruciate. This form I have not seen. In the example from Albarracin, noticed above, the wings are not tinted, and the dilated anterior portion of the pronotum is wholly pale, save rather broad brownish-black lateral margins. It is desirable that further examples of this form be examined.

That this insect was undoubtedly what Pallas had in view when he wrote his description of "*Mantis perla*" in the "Spicilegium Zoologicum" does not appear to me quite certain. I see nothing in the description to fix it with any amount of authority, nor to show that he was acquainted with two European species (this and *M. styriaca*, Poda), and so far as I can ascertain the reason for applying Pallas' name to the species under consideration rests mainly on the statement by Hagen in Stett. Ent. Zeit., 1858, p. 128.

DILARIDÆ.

DILAR NEVADENSIS, Ramb. Cuenca, 1 ♂, T. A. C.

DILAR MERIDIONALIS, Hag. Tragacete, 6 ♂, T. A. C., 1 ♀, G. C. C.; Albarracin, 1 ♀, T. A. C. This is almost constantly smaller than *D. nevadensis*, and although the characters are slight, they rest mainly in the male appendages, and there can be no reasonable doubt as to the distinctness of the two species.

Dr. Chapman (*in litt.*) says of *Dilar* that "the ♂ was abundant late one afternoon flying amongst low growth under pine trees."

OSMYLIDÆ.

OSMYLUS CHREYOPS, L. Tragacete, 2 examples, T. A. C. The wings very heavily spotted.

HEMEROBIDÆ.

HEMEROBUS STIGMA, Steph. (*strigosus*, Zett., *limbatus*, Wesm.). Tragacete, 1 ♀, T. A. C.

CHRYSOPIDÆ.

CHRYSOPA VULGARIS, Schnd. Cuenca, Tragacete, Albarracin, 6 examples, T. A. C.; Tragacete, 4 examples, G. C. C. The genus *Chrysopa* is so copiously represented in Spain as to cause one to wonder that only this very common and wide-spread species was found.

Lewisham, London :

May 4th, 1902.

Winter Butterflies in Tenerife.—A friend, who has been wintering in Tenerife has sent me a collection of butterflies made between end of December and middle of March, and the following notes may be of interest. *Pieris cheiranthi* was very common; but in consequence of an erroneous idea that the male of this species was *P. Wollastoni*, only one specimen of the genuine article was taken, and that by mistake, as it was labelled *P. rapæ*, which it much resembles, and which was everywhere. *P. Daplidice* was somewhat numerous in January, but scarcer later. *Rhodocera Cleobule* was found only in one spot, and the females far outnumbered the males. *Colias Edusa* was almost the commonest butterfly met with, but only two specimens of the var. *Helice* were secured, both in the middle of January. *Lycæna batia*, *Webbiana* and *Lysimon* were local, though abundant where they did occur; unfortunately the specimens have been mostly badly rubbed. *Polygonmatas Phlaas* was everywhere; *Danaïs Plexippus* and *Chrysippus* both fairly common and widely distributed; *Argynnis Lathonia* is represented by two specimens taken on January 17th. *Pyrameis Atalanta* occurred in December and January, in company with *P. Callirhoë*, but was not taken after January. *P. cardui* was not uncommon, but good specimens were scarce until towards end of February. *P. var. Huntera* occurred sparingly, only two being netted, also in January. *Pararge xiphioides* abounded, the earlier specimens being decidedly larger than the later. Finally, *Hesperia Actæon* made its appearance on March 17th.

Of the remaining species recorded for the Island, *Aporia crataegi* and *Thecla rubi* are unauthenticated; *Colias Hyale* is doubtful; and *Hypolimnas Misippus* rests upon two specimens recently blown over from Africa. *Danaïs aloippoides* and *D. dorippus* are very rare, the latter almost doubtful; while *Euchloë Charlonia*, *Lycæna Astrarche*, *Argynnis Maia*, *Epinephele Hispulla*, and *Hipparchia statilinus*, do not appear until later in the year.

I think that this record of 20 species out of a possible 27 resident, taken during the winter months, is somewhat remarkable.—E. A. ELLIOTT, 41, Holland Park, W. : April, 1902.

Tinea angustipennis in North-West Kent.—I have the pleasure to record the capture in Kent, on June 24th, 1901, of *Tinea angustipennis*; I beat it out of some bushes in company with *Teleia fugitivella* about 2 p.m. It has been identified by Mr. E. B. Bankes and Mr. J. H. Durrant. Judging from the note by Mr. Stinton

in Ent. Mo. Mag., vol. xiii, pp. 143-4, the record for Acton Green, 1874, is the only previous one for Britain, and probably not ten specimens are known to have occurred altogether.—E. F. STUDD, Oxton, Exeter: *April 19th*, 1902.

Concerning Mr. Dale's "Pericoma punctum, Eaton," ante p. 107.—The name *punctum* should be fathered upon Megerle MS., instead of upon me [*cf.* Ent. Mo. Mag. (2), vii, 72 (1896)]. Query No. 3 of Mr. Dale's is due to a misunderstanding easily explained. His cabinet labels are synonymic, and often include MS. names of ascertained application that have appeared in print. I remember having given him Megerle's MS. appellation of the species attributed by Schiner to *P. canescens*, Meigen, to rank as a synonym thereunder.—A. E. EATON, Woodlands, Seaton, Devon: *May*, 1902.

Ants displaced by Woodlice in New Zealand.—The phenomenal increase and dispersal of exotic insects and other animals are, in most cases, greater in New Zealand than in any other country where the same species may have been accidentally or purposely introduced. The introduced English woodlouse (*Porcellio grangei*), is a case illustrating in a striking manner the great increase and rapid dispersion of an exotic species. The exact or approximate date of its introduction is not known. During the last twenty years, however, it has spread in prodigious numbers over the whole of the settled districts in the South Island, and it occurs in some of the more remote forest clearings in the forest-clad region of Westland; but it is only with its effects on the native ants in the Ashburton district I have now to refer. Eight years ago several species were numerous, inhabiting nests excavated under the larger stones and boulders lying among the stunted vegetation growing on the open river-bed, and on the flax flats a mile down river from the quiet township. At the present time ants' nests are rare over the area mentioned, while the hollows beneath the larger stones formerly tenanted by ants are occupied by hordes of the objectionable Crustacean. I have lately discovered several nests of *Huberia striata*, the largest native species, which seems to hold its own better than the six smaller species inhabiting the district. I observe that *P. grangei* is being badly attacked by the parasitic mite (*Uropoda vegetans*, De Geer) more so during the late wet summer than in any previous season. The occurrence of *U. vegetans* on woodlice in New Zealand was first recorded by the late Mr. Maskell five years ago, and since then it has increased and spread rapidly in several districts in the South Island. Unfortunately its attacks are not confined to the destructive woodlouse, as it now attacks several species of native *Coleoptera* and *Lepidoptera*. When will this fair land cease receiving this class of detestable interlopers?—W. W. SMITH, Ashburton, N. Z.: *March 10th*, 1902.

Encyrti wanted.—I am studying the life-history of an *Encyrtus*, and want specimens of the species which Bugnion worked at. His came from larvæ of *Hyponomeuta* spp. and *Lithocolletis quercifoliella*. I would like to get any of these larvæ which appear to be parasitised by the *Encyrtus*.—ALICE L. EMBLETON, Balfour Laboratory, Cambridge: *May 16th*, 1902.

Hydradephaga at Askham Bog.—Though Easter this year fell rather too early

to give much hope of successful collecting, still an opportunity for a two or three days' visit to York, long hoped for but till now never obtained, was too enticing to be neglected. The weather unfortunately only too accurately maintained the evil reputation March has so long held, it was not only wet most of the time, but very cold and windy, not the kind of conditions which make the use of the water-net agreeable or profitable. However, though beetles were scarce and required much patience to find, I was quite satisfied with the results, as I added a number of new species to my collection, and had the pleasure of seeing alive for the first time several of the bog specialities.

By working the pools in the field south of Chandler's Whin I obtained, after much labour, a nice series of *Agabus uliginosus*, L., the dull form of the female being the commoner; the companion insect, however, in this part of the bog, *Hydroporus rufifrons*, Duft., was conspicuous only by its absence. In the pools in Chandler's Whin I secured *Agabus abbreviatus*, F., *A. unguicularis*, Thoms., *Ilybius guttiger*, Gyll., and *Hydroporus oblongus*, Steph., the first mentioned was common, the other three very scarce, all of them are very characteristic of the bog; on the other hand *Celambus decoratus*, Gyll., so often recorded from this locality, though I persistently worked for it, failed to put in an appearance; during a return journey from London on April 30th I spent another couple of hours again searching unsuccessfully for this insect. Amongst other insects seen or taken may be mentioned *Agabus Sturmii*, Gyll., *A. bipustulatus*, L., *Rhantus Grapii*, Gyll., *R. exoletus*, Forst., *Copelatus agilis*, F., *Noterus clavicornis*, De G., *Hydroporus umbrosus*, Gyll., and many common species of this latter genus. Of the *Hydrophilidæ* several of the most widely distributed species were fairly abundant, but I did not manage to find either *Limnebius picinus*, Marsh., or *Hydræna palustris*, Er., though the former is usually common there. I am inclined to think the very cold nights and want of sunshine in the day kept many beetles in the soft mud at the bottom of the pool, and they thus evaded my water-net. Still, with every allowance for bad weather, I am afraid my observations, bearing in mind past records, and what I have been told about the locality, point unmistakably to the conclusion that the insect fauna of the bog has undergone a change for the worse. Possibly the very dry summer of the past few years may be the cause, or the ponds themselves may be in process of gradually silting up, from the accumulation of the decayed vegetation which flourishes in them—that this is going on there is little doubt.—T. HUDSON BEARE, 2, Heriot Road, Edinburgh: May 7th, 1902.

Anthicus scoticus, Rye, in the Isle of Man.—During a short visit to Derbyhaven, Isle of Man, in the middle of August, 1899, I obtained five specimens of a black *Anthicus* amongst shingle and seaweed on the shore. Mr. G. C. Champion has kindly determined the species as being *Anthicus scoticus*, Rye, and states that it "is not confined to Scotland, as I have it from the Manchester district." As I have recently taken up my abode in the Isle of Man I hoped to have the opportunity of obtaining further examples of the species, and while collecting near Poolvaish on April 14th, 1902, I found it in considerable abundance running in the sunshine on the sand and shingle, and under dried seaweed on the shore. The following day I found it freely on the shore at Kentraugh, running on the sand at the roots of bent

grass. On May 4th it was still present in the Poolvaish locality, but not in such great numbers. I shall be pleased to distribute series to any Coleopterist who requires the species.—J. HAROLD BAILEY, Port Erin, Isle of Man: *May 10th*, 1902.

Ceuthorrhynchidius mixtus, *Muls. and Rey, near Woking*.—Amongst a number of common beetles captured by my boys in this neighbourhood during the past week I have found a single specimen of this species. It was taken by sweeping nettles and other plants in a damp shady lane. *C. mixtus*, it may be remembered, has been recorded somewhat recently from Porlock and the neighbourhood of Ipswich. *Oxytelus Fairmairei* has also occurred here this spring.—G. C. CHAMPION, Horsell, Woking: *May 14th*, 1902.

Reviews.

FIRST REPORT OF THE (NATAL) GOVERNMENT ENTOMOLOGIST, 1899—1900: by CLAUDE FULLER. Pp. 150, 8vo. Pietermaritzberg. 1901.

It would seem from this Report that the Entomologist has to attend to fungoid diseases as well as to insects, ticks, &c. This first Report is a creditable production, which will no doubt be improved upon in further issues. Naturally it is got up very much on the American model. The illustrations are open to improvement, that on page 83 strikes us as being very bad: the plate illustrations from photos. are good. One point is of interest at the present time. In discussing the "Fruit Moth" question the author, without expressing any very decided opinion, distinctly leans towards the belief that the fruit is first punctured by the "Fruit Fly" or some other insect, and that the moths enlarge upon the work thus commenced.

THE BUTTERFLIES AND MOTHS OF EUROPE: by W. F. KIRBY, F.L.S., with 54 coloured plates, &c. 4to. Cassell and Co., Ltd., London, Paris, New York, and Melbourne. 1902.

We have before us the first part of this new and enlarged form of the same author's "European Butterflies and Moths." The gaudy cover is in bad taste. But the actual Plates are excellent so far as they go, and the letter-press fairly up to date. The author must not lose sight of the fact that a similar work (albeit in the German language), being a 3rd edition of E. Hofmann's "Schmetterlinge Europas," by Dr. Arnold Spuler, is being extensively sold in this country, in which the plates are simply exquisite, and the text with more scientific pretensions.

Obituary.

John Edward Fletcher was born at Newtown, Worcester, on August 13th, 1836, and died at St. John's, Worcester, on February 24th, 1902. He is said to have commenced his entomological studies at the age of 15, and he continued them practically until his death. But severe internal injuries sustained some ten years ago had debarred him from out-door work. He was in comparatively humble circumstances, following the occupation of a working glover; but he was a man of rare intelligence, and, as his letters showed, of considerable education, albeit, probably largely self-taught. Retiring and reserved in the extreme, he did

not mix with others of similar tastes, even in his own locality, and his doings and acquirements were more known to the wider circle of British entomologists at large than at home. He amassed a considerable library, and he seldom sought extraneous aid in determining his captures until he had exhausted the works at his disposal: and he was seldom in error in supposing that this or that insect had not previously been recorded as British. His additions to the British Fauna were numerous and notable. There is scarcely an Order in which he did not make discoveries; in some instances perfectly new, and which were named after him. Not the least important amongst his additions was the remarkable terrestrial Trichopteron, *Enoicyla pusilla*, Burm., which probably remains to be re-discovered. His collections of British insects of all Orders were extensive, and the local collection very full, prepared with the greatest care and determined with great accuracy. We are delighted to hear that they are likely to be acquired by his native city, to which they would be invaluable. He did not publish much, but notes from his pen are dispersed over a long series of vols. of this Magazine; and he was practically responsible for the whole of the "Insecta" for Worcestershire in the new Victoria County series, he has also left much matter in MS. Fletcher was of a type of Naturalist spread sparingly over the country; would there were more like him!

The information as to his early history, &c., has been obtained from his widow, through the kind intermediary of Mr. W. H. Edwards, of the Worcester Museum, who we believe met him personally only once, some 20 years ago. Mr. Fletcher joined the Entomological Society of London so long ago as 1865, but resigned last year.

Charles Marcus Wakefield, J.P., F.L.S., F.E.S., who, many years ago, was intimately connected with the Entomology of New Zealand, died at his residence, Belmont, Uxbridge, on May 11th, 1902, aged 64. He came of a family notably mixed up with the early annals of New Zealand, and was the only son of Mr. D. Bell Wakefield, Judge of the Supreme Court in N. Z.; he was educated in England, and subsequently held an official appointment in New Zealand, but retired owing to bad health, and came "home" with a large store of New Zealand insects, which were worked out by specialists, to whom he liberally presented them. He married, bought an estate at Uxbridge, and settled down to the quiet life of an English country gentleman; but he was for years no stranger to the meetings of the Linnean and Entomological Societies. He was much respected by his fellow townsmen at Uxbridge, and leaves a widow, two sons and two daughters to mourn their bereavement.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *March 17th, 1902.*—Mr. G. T. BETHUNE-BAKER, Vice-President, in the Chair.

Mr. R. C. Bradley showed a few *Lepidoptera*, including a pair of *Apamea testacea*, Hb., from Moseley, which had been taken in copula, and *Sesia ichneumoni-formis* (S. V.), F., *Myelois cribrella*, Hb. (*cribrum*, Schrk.), *Euchloris pustulata*, Hufn. (*bajularia*, Schiff.), *Hemithea strigata*, Müll. (*thymiaria*, Gn.), &c., from Wyre Forest. Mr. J. T. Fountain, a series of *Lasiocampa quercus*, L., including

local bred females (from Sutton Park) from young larvæ found in the spring and bred the same summer; the specimens varying from very light to quite dark; also some males taken by "sembling" at Sutton, with wide light bars approaching var. *calluna*, Palmer; in answer to questions he said that he had also taken larvæ in the autumn in Sutton Park, which were then full fed. Mr. A. D. Imms, *Lepisma saccharina*, L., taken in a kitchen at West Bromwich, he said it was one of the few British species of *Thysanura*. Mr. C. J. Wainwright, photos. of insects and parts of insects taken by Mr. Mearns, of Aberdeen. Mr. G. T. Bethune-Baker, a drawer full of *Lycanidæ*, of the group *Amblypodia*, chiefly of the genus *Arhopala*, and gave an account of the same, explaining his theories of the origin of the various forms. He believes all were originally brown, and the more blue there is the more recent the species probably is.

April 21st, 1902.—The Vice-President in the Chair.

Mr. C. Bradley showed the following species of *Aculeate Hymenoptera* from Wyre Forest, *Pompilus cinctellus*, Spin., *Agonia hircana*, F., *Pseudagenia punctum*, F., and *Stelis aterrima*, Panz., all being new to the district. Mr. C. J. Wainwright, a small collection of *Diptera* made by Dr. T. A. Chapman in Spain last year, chiefly in the Sierra Albarracín; amongst the more interesting species were *Volucella elegans*, Port., originally described from Spain, *Physcephala chrysorrhæa*, Meig., *Anthrax velutina*, Meig., *Systæchus leucophæus*, Meig., *Holopogon clavipes*, Loew, *Cyrtus gibbus*, F., and a series of a species of *Tachinid* of the *Plagia* group, which had been bred from larvæ of *Albarracina Korbi*, and which appears to be undescribed, very distinct from any of the known species. Mr. W. H. Flint, a long series of *Brephos notha*, Hb., taken in the Forest of Dean last Easter Tuesday; the species was quite common, flying chiefly round the aspens, and he noticed that they did not appear to come to swallow blossom at all like their congener *parthenias*. Mr. Bethune-Baker, a number of South African *Lycanidæ*, including many of colours and patterns unusual to the family. Mr. W. H. Flint gave an account of the structure and development, &c., of the wings of *Lepidoptera*.—COLBRAN J. WAINWRIGHT, *Hon. Secretary*.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *April 14th, 1902.*—Dr. J. W. ELLIS, F.E.S., in the Chair.

The usual monthly meeting was held on Monday, April 14th, in the Royal Institution. Dr. J. W. Ellis, F.E.S. occupied the chair. Minutes of the preceding meeting having been read and confirmed, the following gentlemen were balloted for, and duly elected Members of the Society:—Mr. Hy. Champ (Manchester), Mr. Benjamin Jones (Levenshulme), Mr. W. Raepier (Levenshulme), and Mr. J. T. Wardley (Knotty Ash). Mr. R. Wilding proposed that the evening meetings be adjourned until October next. Mr. Webster seconded, and it was carried. Mr. Wilding further proposed that a field meeting be held in the summer, the arrangements to be made by the Secretaries. Mr. Pierce seconded, and it was carried unanimously. Mr. F. N. Pierce, F.E.S., read a paper on the British *Palicide*, which was communicated by Mr. G. C. Bignell, F.E.S., and was well illustrated by the *micro-lantern*. The following exhibits were examined:—A small collection of

Coccidæ by Mr. R. Newstead; Micro slides of *Pulicidæ* by Mr. Pierce; *Biston hirtaria* by Mr. W. A. Tyerman; *Coleoptera* from Moseley Hill, by Mr. G. A. Dunlop; *Coleoptera*, including species new to the District, by Mr. Wilding; and *Cymatophora flavicornis* mounted in the natural position on a branch of the food plant (*Betula alba*) by Mr. Fred Birch.—F. BIRCH, Hon. Sec.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :
 March 27th, 1902.—Mr. F. NOAD CLARK, President, in the Chair.

Mr. Stanley Edwards exhibited very fine specimens of *Ornithoptera Bauermanni*, *Naias* and *Criton* from the Malay Archipelago, and a male of the rare *O. Plateni* from New Guinea. A collection of *Hemiptera-Heteroptera* from all parts of the world, comprising 17 genera and 85 species.

April 10th, 1902.—The President in the Chair.

Mr. Main, a twig of hawthorn from the New Forest, having a large deposit of ova of *Eriogaster lanestris*, and remarked on the curious spiral arrangement of the deposit. The Rev. F. P. Perry, a number of specimens collected during a short residence in S. Africa, including a large and conspicuous Ant-lion, several species of cockroach, clusters of *Mantis* eggs from the gum trees, numerous species of *Coleoptera*, especially *Longicorns*, and a very fine species of *Hemiptera*. He specially pointed out a large Coleopteron, which had powerful stridulatory organs at the back of the pronotum. Mr. Moore, some ten species of exotic *Blattidæ*, including *Blabera gigantea*. Mr. Kemp, a macropterous example of *Hydrometra stagnorum* from Mitcham. Mr. Hewitt and Mr. Nottle, long bred series of *Nysia hispidaria* and *Amphydasys strataria*, both from Epping Forest parents, and a number of *Phigalia pedaria* from W. Wickham. Mr. Edwards, another collection of *Hemiptera-Heteroptera*, mainly from S. America, and a number of species of the genus *Charaxes*, including several fine examples of *C. Jasius*. Mr. Lucas, specimens of *Eriocrania subpurpurella*, which he stated was now common at Oxshott on fences. Mr. Clark, microscopic slides, showing details of structure of *Coriza striata*, *Orygia antiqua*, &c. Dr. Chapman, specimens of *Raslerstammia Erulbella*, bred from larvæ beaten by Mr. F. M. S. Carr, at Oxshott, off birch, and gave notes on its habits and occurrence, together with remarks on the spelling of its specific name. Mr. South, a curious banded form of *Acidalia marginepunctata* from the hills round Clevedon, and a large number of species of British and Chinese *Lepidoptera*, concerning which he read a series of notes, entitled "Some British species of *Lepidoptera* and their Geographical Distribution."

April 24th, 1902.—The President in the Chair.

Mr. C. R. L. Boxer, of Lee, was elected a Member.

Mr. Harrison exhibited a long series of *Taniocampa opima*, bred from ova collected at Wallasey, Cheshire; more than half the specimens were of an extremely dark coloration, and very few of the type form. Mr. Main, numerous species he had collected in the New Forest at Easter. Mr. Kaye, a very fine series of *Heliconius Lindigii* taken in British Guiana on the Rio Potaro, and also specimens of *Melititia Ceto* and *M. caudatum*, both from South America. Mr. R. Adkin, a series of dark forms of *Pailura monacha* bred from a New Forest parent taken in 1901. Mr. Moore, *Polyspilota striata* and *Tenodera aridifolia* from Africa, *Hierodula*

vitula and *Creobotes urbana* from Sylhet Mr. Colthrup; a var. of *Abraxas grossulariata*, in which the black markings were extended, some coalescing into bands; and a specimen of *Cicada montana* from the New Forest, found close to the pupa case from which it had just emerged. Rev. F. Perry, a large number of insects from South Africa, including stages of the Migratory Locust, a Wasp which preys upon Spiders, *Hemiptera* showing mimicry, &c. Mr. Edwards, several species of the Nymphaline genus *Prepona*; and the various species and races of the *Agamemnon* group of *Papilio*. Mr. Turner, a specimen of the Harlequin Beetle, *Acerocinus longimanus* from Trinidad. Mr. Sich read a paper on "The Lesser British *Lepidoptera*," and exhibited a large number of species typical of the various groups.

May 8th, 1902.—The President in the Chair.

Messrs. Harrison and Main exhibited a very varied series of *Teniocampa incerta* from Delamere Forest, Epping Forest, and Liverpool. Mr. Moore, *Papilio Ptolychus*, ♂ and ♀, from the Solomon Isles, and *P. Erectheus* from New Guinea.—HENRY J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: March 19th, 1902.—Dr. F. DUCANE GODMAN, D.C.L., F.R.S., Vice-President, in the Chair.

Mr. Bensaiah W. Adkin, of Brandon House, Morden Hill, Lewisham; Mr. E. D. Bostock, of Texall Lodge, Stafford; Mr. Hubert Edelsten, of the Elms, Forty Hill, Enfield, Middlesex; Capt. Frederick W. Hutton, F.R.S., of the Canterbury Museum, Christchurch, New Zealand; Mr. Frederick William Lambert Sladen, of Ripple Court, Ringwould, Dover; and Mr. Gerard Orby Sloper, of Westrop House, Highworth, Wiltshire; were elected Fellows of the Society.

Mr. W. J. Kaye exhibited a number of insects from British Guiana, many of them taken by himself, illustrative of Müllerian mimicry. Dr. DuCane Godman remarked that in these regions many different forms of the same butterfly would often occur within a radius of fifty miles, showing a wide range of variation. Professor E. B. Poulton, F.R.S., cocoons of *Malacosoma neustria* collected by Mr. Hamm in 1900, spun upon black-currant and apple-trees in his garden at Oxford. All of them had been attacked by birds through the leaf, this being the thinnest part of the cocoon, and the pupa thus more easily abstracted. With regard to the resting habit of *Hybernia leucophaearia*, he said that he had observed that this moth usually rested in a horizontal position. Dr. Longstaff said that all the specimens he had observed on green stems affected a similar position, and that he had only found one on a birch-tree. Mr. M. Jacoby said that he never found the species on oak at all, but palings, also in the same position, which facts Professor Poulton said tended to show that the protective instinct of the species was retained in such localities. Mr. G. T. Porritt, two bred black *Larentia multiatrigaria* from Huddersfield, and said that the dark form was rapidly increasing in Yorkshire. Of those already emerged and reared from the same brood, three were normal and two dark. Dr. Frederick A. Dixey read a paper, illustrated by lantern slides, entitled:—"Notes on some cases of Seasonal Dimorphism in Butterflies, with an account of Experiments made by Mr. Guy A. K. Marshall." In the discussion which followed, Colonel Yerbury said that a temporary rainfall in a dry season in dry places had a marvellous effect in producing intermediate and wet-season forms.

Mr. F. Merrifield pointed out the difference between experiments upon tropical and European species. In the tropics there are not any very great distinctions of seasons and temperature, whereas in temperate climates the seasons are clearly marked off from one another. Professor E. B. Poulton expressed his opinion that by breeding species through, Mr. Marshall had proved that one form gives rise directly to the other; the pairing of the two forms being a biological test of very considerable value. Colonel Swinhoe, Dr. Jordan, and Dr. F. DuCane Godman also joined in the discussion. Professor E. B. Poulton read a paper on "Mimicry, illustrated by the Sanger-Shepherd three-colour process," supplementary to his paper read at the Meeting of the Society on March 5th.—H. GOSS and H. ROWLAND-BROWN, *Hon. Secs.*

April 16th, 1902.—The Rev. Canon W. W. FOWLER, D.Sc., M.A., F.L.S., President, in the Chair.

Mr. James Roland Charnley, of Howick House, Howick, near Preston, Lancs., and Mr. A. T. Gillanders, of Park Cottage, Alnwick, were elected Fellows of the Society.

Mr. O. E. Janson exhibited specimens of both sexes of *Ornithoptera Victoria* from Ysabel, Solomon Islands, recently taken by Mr. Albert Meek, and remarked on the variation in the colour and markings in the males. Mr. H. W. Sheppard-Walwyn, variations of *Euchelia jacobæ* taken by him at Winchester in July, 1889. Mr. Willoughby Gardner, *Celiozys mandibularis*, Nyl., from the Cheshire coast, a species new to Britain; and *Osmia xanthomelana*, ♂ and ♀, and *Osmia parietina*, Curt., ♂ and ♀, from North Wales. Mr. A. J. Chitty, a specimen of *Aglais urticae* taken at sallow on March 28th, having a large portion of the hind-wings cut off so that when folded they were symmetrical in outline. From their appearance he concluded they had been bitten off by some animal, probably during hibernation. Dr. T. A. Chapman called attention to the remarkable bilateral asymmetry in the male appendages of the Hemarid Sphinx, *Cephonodus hylas*, Linn. He also exhibited specimens removed from the insect, and also of the several parts, as well as a rough sketch of the clasps and tegumen. Mr. C. P. Pickett, *Hybernia leucophaearia* taken during March at Chingford, Highgate, and Finchley, including the ordinary mottled, the black and white banded, and six very deep chocolate-coloured forms, one unicolorous. He also showed series of *Phigalia pedaria*, *Anisopteryx ascularia*, and *Nyssia hispidaria* from the North Metropolitan district. Mr. H. J. Turner, on behalf of Mr. W. West, of Greenwich, exhibited specimens ♂s and ♀s of *Stictocoris flaveola*, Bohm., a species new to the British fauna, found amongst long grass in damp places at Lee, Kidbrook, and Shooter's Hill, and identified by Mr. Jas. Edwards and Dr. Sahlberg. A description of the species by Mr. Edwards is published in the Jan. No. of the E. M. M., 2nd ser., vol. xiii, pp. 5-6. He also exhibited several specimens of *Typhlocyba candidula*, Kb., a species first discovered by Mr. West at Lewisham and Blackheath on *Populus alba*, and remarked that it was interesting to find two quite new species occurring in the district so well worked by Douglas and others in years past. Dr. D. Sharp, F.R.S., communicated a Paper by Miss Alice L. Embleton, B.Sc., entitled "On the Economic importance of the Parasites of Coccidæ." Colonel Charles Swinhoe, M.A., F.L.S., read a Paper entitled "Eastern and Australian Drepanulidæ, Epiplemidæ, Micronidæ and Geometridæ in the British Museum Collection." Mr. William F. Kirby, F.L.S., contributed a Paper entitled "Additional Notes on Mr. Distant's Collection of African Locustidæ."—H. ROWLAND-BROWN, *Hon. Sec.*

*HYMENOPTERA-ACULEATA OF JERSEY, GUERNSEY, ALDERNEY,
AND ST. BRIAC (BRITTANY).*

BY EDWARD SAUNDERS, F.L.S.

The *Hymenoptera-Aculeata* of Jersey have not apparently received much attention from Entomologists, the only lists of species taken in the Island being one in Ansted's "Channel Islands," in which 27 species are recorded, and another given by Mr. W. A. Luff, at the end of his "*Aculeate Hymenoptera of Guernsey*," wherein the number is raised to 45. Mr. Luff informs me that he has omitted three of Ansted's records, *Bembex rostrata*, *Vespa germanica*, and *Cælioxyz rufocaudata* (= *brevis* of the following list), so that the number recorded should be 48. During a stay in Jersey last summer of three weeks at St. Aubin's, from the 5th to the 24th of July, I did what I could to sample the *Hymenoptera* of the Island. The rocky nature of the coast is not, of course, favourable to *Aculeata*, but there are in places areas of overlying sand dunes, &c., which are quite a paradise for the fossorial members of the order. Nearly all the best things were found in these localities; the lanes, &c., only produced a few species of *Halictus*, *Andrena*, *Crabro*, &c., most of which also occurred on the sandy tracts. I had no opportunity of working the North of the Island, but on the one occasion when I visited Plémont and Grève le Lec nothing occurred which I had not seen in the South, and the species were comparatively few in number. So far as I could ascertain, St. Ouen's Bay and its surroundings is the best locality of all, and that in which rarities are most likely to occur; here there is a fine sandy shore, and the sand runs inland for about three miles to Don Bridge, another excellent and easily accessible locality, but lacking the maritime species found in the Bay. No doubt all the intervening sandy tract is also good, but it is not so easily reached, and part of it is used as a rifle range, and consequently red flags warn the collector off a very large area of good ground. The little sandy tract just behind, and to the west of Bel Royal Station, between St. Aubin's and St. Heliers, is another productive spot, but it is small, and several of the St. Ouen's Bay and Don Bridge species did not occur there. I found the local *Allium sphaerocephalum* a very attractive plant, and one on which it was very difficult to see its visitors, even large species like *Sphex* or *Philanthus* were often very easily overlooked, although of quite a different colour to the purple-red head of the onion. It was of course impossible in three weeks to work *any one* of these localities thoroughly. My collecting was practically

confined to the immediate surroundings of St. Aubin's, Don Bridge, and Bel Royal. Two visits to St. Ouen's Bay, one to the neighbourhood of Gorey, and one to the north of the Island, viz., to Plémont and Grève le Lec being the only longer expeditions I was able to make. The list here given should therefore be very largely increased, even for the species occurring in July. Altogether 129 species were secured, and to these must be added seventeen recorded by W. A. Luff, which I did not meet with, making a total record for the Island of 146 species. Of these, fifteen, viz., *Scolia 4-punctata*, *Pompilus 6-maculatus*, *fumipennis*, *pilosellus*?, *Tachysphex*, n. sp.?, *Sphex flavipennis*, *Gorytes punctatus*?, *Bembex rostrata*, *Sphecodes nigrutilus*, *Halictus scabiosæ*, *H. brevicornis*, *Nomada similis*, *N. fuscicornis*, *Cœlioxyx brevis*, *Megachile muraria*, do not, so far as we know, occur in Britain, neither have they been recorded from either Guernsey or Alderney.

The following comparative table of the species known as occurring in the three larger Channel Islands has been formed from the data already mentioned, so far as Jersey is concerned; and from the excellent lists published by Mr. Luff, in the Transactions of the Guernsey Soc. of Natural Science for 1894 and 1899 respectively, so far as concerns Guernsey* and Alderney. The comparison is far from satisfactory, as the Jersey list mainly depends on my own efforts in the three weeks of July which I spent there, and during which time I gave up nearly all my time to collecting, whereas those of Guernsey and Alderney are composed of species taken throughout the season by Entomologists, whose other occupations must have prevented them from pursuing their subject uninterruptedly. At the same time the table may be of value, if only as a means of inducing others to improve upon it. I have added a fourth column, to include the species taken by me at St. Briac, in Brittany, in August, 1899, as, although the time of year was a little later than that when the Jersey captures were made, still most of the August species appear in July, and it will give at any rate an idea of the relation of the fauna of this mainland coast to that of Jersey. Out of the 64 species common to St. Briac and the Channel Islands, 62 occur in Jersey, whereas only 80 are recorded from either Guernsey or Alderney. There can, however, be little doubt that many additional species will yet be found in these latter Islands, as it seems probable that species common both in the South of England and Jersey, of which there are many, will

* To Mr. Luff's Guernsey list I have added four species, *Colletes succincta*, *fodiens*, *Daviesiana*, and *Priocampe campestris*, taken by Mr. F. V. Theobald, the three species of *Colletes* at Cobo, and the *Priocampe* at Gouffre.

some day find a place in these lists. It is an interesting fact, and one that shows how much more closely the fauna of Jersey approximates to that of the continent than do those of the other Islands, that in Guernsey and Alderney only one species (*Andrena flessæ*) is recorded which is not also found in Britain, whereas in Jersey fifteen such species have occurred, and 28 were the result of a fortnight's collecting at St. Briac.

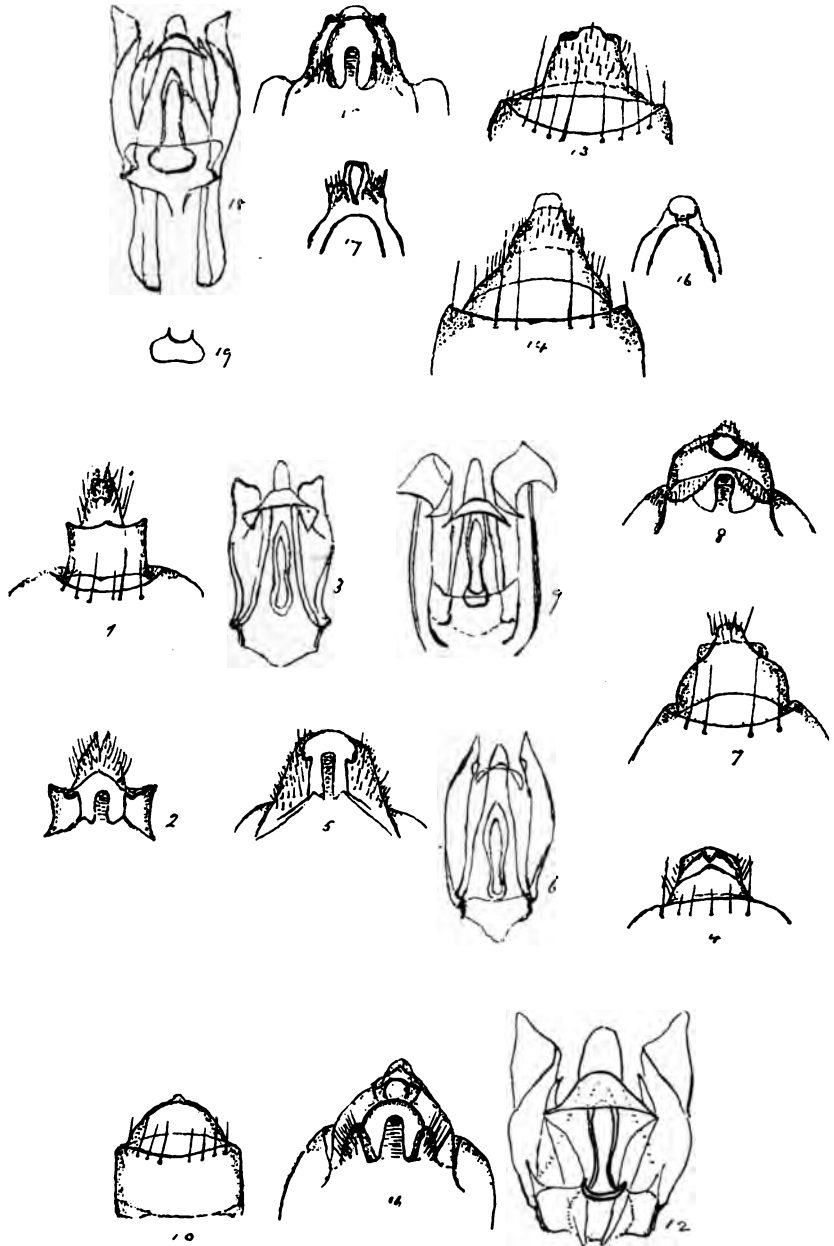
COMPARATIVE TABLE.

J (Jersey). G (Guernsey). A (Alderney). B (St. Briac).

<i>Formica rufa</i> , L., common near Greenville Station, but I could not find the nest.....	J	G		
„ <i>fusca</i> , Ltr., common	J	G	A	
<i>Lasius fuliginosus</i> , Ltr.....		G		
„ <i>niger</i> , L., common.....	J			
„ „ <i>r. alienus</i>		G	A	
„ <i>flavus</i> , De Geer, "common" (Luff)		G	A	
<i>Tapinoma erraticum</i> , Ltr.		G		
<i>Tetramorium cæspitum</i> , L., Don Bridge and St. Ouen's Bay ...	J	G	A	
<i>Myrmica rubra</i> , L., <i>r. ruginodis</i> , St. Aubin's	J			
„ „ <i>r. scabrinodis</i> , „	J	G	A	
<i>Leptothorax tuberum</i> , Fab., <i>r. Nylanderi</i> , 2 ♀ in Convolvulus flowers near St. Aubin's	J	G		
<i>Mutilla rufipes</i> , Ltr., St. Ouen's Bay, Don Bridge and Bel Royal; Corbière, 3 specimens (Luff)	J		A	
<i>Myrmica melanocephala</i> , Fab.....		G		
* <i>Scolia quadripunctata</i> , Fab., St. Ouen's Bay, Don Bridge, "common"	J			
<i>Tiphia femorata</i> , Fab., „ „ on wild carrot....	J	G	A	B
<i>Pompilus unicolor</i> , Spin.		G		
„ <i>bicolor</i> , Lep., ♂ ♀ Don Bridge	J			B
* „ <i>fumipennis</i> , Dhlb. „ „ and St. Ouen's Bay..	J			B
„ <i>ungicularis</i> , Thoms. „ „ and St. Aubin's	J			
„ <i>gibbus</i> , Fab. „ „	J	G		B
„ <i>chalybeatus</i> , Schiödte, „ „	J	G	A	B
„ <i>spissus</i> ?, Schiödte, „ „	J			
* „ <i>pilosellus</i> , Wesm.? „ „ St. Aubin's, 1 ♀	J			
„ <i>pectinipes</i> , L.			A	
* „ <i>searmaculatus</i> , Spin. „ „ and St. Ouen's Bay.....	J			
„ <i>plumbeus</i> , Fab., Bel Royal „ „ „	J		A	B
„ <i>cinctellus</i> , Spin., near St. Aubin's	J			
„ <i>rufipes</i> , L., Don Bridge, "common"	J			B
<i>Salix fuscus</i> , L., "Sandhills near St. Ouen's Bay" (Luff)	J			
„ <i>affinis</i> , V. d. L., Don Bridge and St. Aubin's (common)	J			B
„ <i>pusillus</i> , Schiödte, „ „ „ "St. Brelade's Bay" (Luff)	J		A	B
„ <i>parvulus</i> , Dahlb., „ „ „	J	G		

<i>Pseudagenia carbonaria</i> , Scop., near St. Aubin's, running over leaves of brambles, &c., both sexes fairly common	J	G		
<i>Ceropales maculatus</i> , Fab., St. Ouen's Bay, on wild carrot	J			B
<i>Astatos boops</i> , Schr., St. Aubin's, 1 ♂	J			
" <i>stigma</i> , Pz., Bel Royal, 1 ♀	J			
<i>Tachysphex unicolor</i> , Pz., Don Bridge	J			B
" <i>pectinipes</i> , L., " " St. Ouen's Bay, Bel Royal, Gorey, St. Aubin's	J		A	B
" <i>lativalvis</i> , Thoms., Don Bridge, St. Ouen's Bay ...	J			
* " n.sp.? St. Ouen's Bay, 1 ♀	J			
<i>Dinetus pictus</i> , Fab., near Greenville Station, Bel Royal. Common on <i>Achillea</i>	J			B
<i>Miscophus maritimus</i> , Sm., Don Bridge, St. Ouen's Bay	J			
<i>Trypoxylon attenuatum</i> , Sm., near St. Aubin's	J			
* <i>Spheca flavipennis</i> , Fab., Don Bridge, Bel Royal, St. Ouen's Bay, very partial to heads of <i>Allium sphaeroccephalum</i> at Bel Royal	J			B
<i>Ammophila sabulosa</i> , L., common	J	G	A	B
" <i>campestris</i> , Ltr., Don Bridge, "several, St. Ouen's Bay" (Luff)	J			B
" <i>hirsuta</i> , Scop., common	J			B
" <i>lutaria</i> Fab., " " "	J	G	A	
<i>Diodontus minutus</i> , Fab., St. Aubin's	J	G	A	
<i>Passalæxus insignis</i> , V. d. L., St. Aubin's	J			
<i>Pemphredon lugubris</i> , Ltr.			A	
" <i>lethifer</i> , Shuck., St. Aubin's	J	G	A	B
" <i>Shuckardi</i> , Mor.			A	
<i>Mimesa Shuckardi</i> , Wesm.		G		
* <i>Gorytes punctatus</i> , Kirsch.? 1 ♂, Don Bridge, 1 ♀, St. Ouen's Bay, on <i>Daucus carota</i>	J			
" <i>campestris</i> , L.			A	
" <i>tumidus</i> , Pz., St. Aubin's	J			
<i>Nysson dimidiatus</i> , Jur., Don Bridge, on <i>Daucus carota</i>	J			B
" <i>trimaculatus</i> , Rossi			A	
<i>Mellinus arvensis</i> , L.		G		B
" <i>sabulosus</i> , Fab.			A	
<i>Bembex rostrata</i> , L., Don Bridge, St. Ouen's Bay	J			B
* <i>Philanthus triangulum</i> , F., common	J	G	A	B
<i>Cerceris arenaria</i> , L., Bel Royal, Gorey, and "not uncommon near St. Ouen's Bay" (Luff)	J	G	A	B
" <i>ornata</i> , Schæff., St. Aubin's, Don Bridge, St. Ouen's Bay	J	G		B
" <i>labiata</i> , Fab.		G	A	
<i>Oxybelus mucronatus</i> , Fab., St. Ouen's Bay, 1 ♀	J			B
" <i>uniglumis</i> , L., common everywhere	J	G		B
<i>Crabro leucostomus</i> , L., St. Aubin's	J			
" <i>podagricus</i> , V. d. L. St. Aubin's	J			
" <i>palmipes</i> , L., " " "	J	G		
" <i>elongatulus</i> , V. d. L., " " "	J	G	A	

<i>Crabro quadrimaculatus</i> , Dhlb., St. Aubin's.....	J			
„ <i>cephalotes</i> , Pz.		G		
„ <i>Saundersi</i> , Perk., St. Aubin's.....	J		A	
„ <i>dimidiatus</i> , Fab., „	J			
„ <i>cribrarius</i> , L., Don Bridge, 1 ♂	J	G	A	B
„ <i>peltarius</i> , Schreb., St. Aubin's, Don Bridge, Bel Royal	J			
„ <i>albilabris</i> , Fab., St. Aubin's, Gorey	J			B
<i>Entomognathus brevis</i> , V. d L., common	J			B
<i>Vespa sylvestris</i> , Scop., St. Aubin's	J	G	A	
„ <i>vulgaris</i> , L., „	J	G		
„ <i>germanica</i> , Fab., recorded in Ansted's "Channel Islands" from Jersey.....	J	G		
<i>Odynerus spinipes</i> , L.		G		
„ <i>reniformis</i> , Gmel.		G		
„ <i>parietum</i> , L., St. Aubin's, St. Ouen's Bay	J	G	A	B
„ <i>callosus</i> , Thoms.		G	A	
„ <i>trifasciatus</i> , Fab.		G		
„ <i>pictus</i> , Curt.		G	A	
„ <i>antilope</i> , Pz.		G		
<i>Colletes succincta</i> , Ltr.		G		
„ <i>fodiens</i> , Kirb. Common on <i>Senecio</i>	J	G	A	B
„ <i>piciatigma</i> , Thoms.			A	
„ <i>Daviesana</i> , Smith, common on Chamomile	J	G	A	
„ <i>marginata</i> , Smith, Don Bridge	J			B
<i>Prosopeia Masoni</i> , Saund., St. Ouen's Bay, 1 ♀	J			
„ <i>signata</i> , Panz., St. Aubin's	J			
„ <i>hyalinata</i> , Smith „	J	G	A	B
„ <i>brevicornis</i> , Nyl., „ and Don Bridge	J			
„ <i>pictipes</i> , Nyl., „ Bel Royal, Gorey.....	J			
<i>Sphecodes gibbus</i> , L.		G		B
„ <i>subquadratus</i> , Smith, St. Aubin's, Bel Royal	J	G	A	B
„ <i>puncticeps</i> , Thoms. „	J			B
„ <i>longulus</i> , V. Hag., Gorey.....	J			
„ <i>pilifrons</i> , Thoms.		G		
„ <i>similis</i> , Wesm., St. Ouen's Bay	J	G	A	
„ <i>variegatus</i> , V. Hag., St. Aubin's.....	J			
* „ <i>nigritulus</i> , V. Hag., Bel Royal, St. Aubin's, Plémont	J			
„ <i>dimidiatus</i> , V. Hag.		G	A	
„ <i>affinis</i> , V. Hag., St. Aubin's	J	G	A	B
* <i>Halictus scabiosæ</i> , Rossi, St. Aubin's, 1 ♀	J			B
„ <i>rubicundus</i> , Chr., Don Bridge, 1 ♀	J	G	A	
„ <i>xanthopus</i> , Kirb.		G		
„ <i>leucozonius</i> , Schr., St. Aubin's, Don Bridge, &c. "Common near St. Heliers" (Luff).....	J	G	A	≡
„ <i>quadrinotatus</i> , Kirb., Plémont	J		A	
„ <i>cylindricus</i> , Fab., St. Aubin's, &c., common	J	G	A	≡
„ <i>albipes</i> , Kirb.		G	A	



<i>Halictus malachurus</i> , Kirb., St. Aubin's	J			
" <i>paucillus</i> , Schk., St. Aubin's, 1 ♀	J			
* " <i>brevicornis</i> , Schk. Common on yellow composites...	J			B
" <i>villosulus</i> , Kirb., St. Aubin's, Gorey	J	G	A	B
" <i>nitidiusculus</i> , Kirb., St. Aubin's, Gorey	J			
" <i>punctatissimus</i> , Schk.		G		B
" <i>minutissimus</i> , Kirb., St. Aubin's, Gorey	J	G		B
" <i>tumulorum</i> L., St. Aubin's, Bel Royal, Don Bridge	J	G	A	B
" <i>gramineus</i> , Smith		G		
" <i>Smeathmanellus</i> , Kirb. Common	J	G	A	B
" <i>morio</i> , Kirb., Don Bridge	J	G	A	B
" <i>leucopus</i> , Kirb., St. Aubin's, Gorey	J	G		B
<i>Andrena albicans</i> , Kirb., recorded in Ansted's "Channel Islands" from Jersey	J			
" <i>pilipes</i> , Fab., Don Bridge. This is probably the "atra" of Ansted's "Channel Islands"	J		A	B
" <i>bimaculata</i> , Kirb. Common on <i>Umbelliferae</i> , <i>Rubus</i> and <i>Brassica</i>	J			
" <i>rosa</i> , Pz., r. <i>Trimmerana</i>		G		
* " <i>flessa</i> , Pz.		G	A	
" <i>cineraria</i> , L.		G	A	
" <i>thoracica</i> , Fab.		G	A	
" <i>fulva</i> , Schr.		G		
" <i>Clarkella</i> , Kirb.		G		
" <i>nigroænea</i> , Kirb., "Gorey" (Luff) 1 specimen	J	G	A	
" <i>Gwynana</i> , Kirb., St. Ouen's Bay, 1 ♀	J	G	A	
" <i>angustior</i> , Kirb.		G	A	
" <i>varians</i> , Rossi		G		
" <i>nigriceps</i> , Kirb., Don Bridge, 1 ♀	J		A	B
" <i>fulvicrus</i> , Kirb., abundant everywhere	J	G	A	
" <i>fasciata</i> , Nyl.		G		
" <i>cingulata</i> , Fab.		G	A	
" <i>fulvago</i> , Chr., "one near St. Aubin's" (Luff)	J			
" <i>Coitana</i> , Kirb.			A	
" <i>nana</i> , Kirb., Gorey, 1 ♀	J		A	B
" <i>minutula</i> , Kirb., St. Aubin's, 1 ♀	J			B
" <i>Afzeliella</i> , Kirb., Bel Royal (Luff), Don Bridge, St. Ouen's Bay	J	G	A	
" <i>Wilkella</i> , Kirb.			A	
<i>Cilissa melanura</i> , Nyl.			A	B
" <i>leporina</i> , Pz., Bel Royal, Don Bridge	J		A	
<i>Dasypoda hirtipes</i> , Ltr., Bel Royal. ♂ very common on the onion heads. I counted seven on one head	J			B
<i>Panurgus calcaratus</i> , Scop., St. Aubin's	J	G	A	
" <i>ursinus</i> , Gmel. "	J	G	A	
<i>Nomada fucata</i> , Pz., Bel Royal, on <i>Senecio</i>	J			
" <i>jacobæ</i> , Pz., "one near St. Ouen's Bay" (Luff)	J		A	B
" <i>succincta</i> , Pz.		G	A	

<i>Nomada lineola</i> , Pz., Bel Royal, on <i>Senecio</i>	J	A		
„ <i>Lathburiana</i> , Kirb.....		G		
„ <i>rusticornis</i> , L., "common" (Luff).....	J	G		
* „ <i>similis</i> , Mor., Don Bridge, 1 ♂	J			
* „ <i>fuscicornis</i> , Nyl., Don Bridge, 2 ♂	J			
„ <i>Fabriciana</i> , L.....		G		
„ <i>furva</i> , Pz.....		G		
<i>Epeolus productus</i> , Thoms., Bel Royal, St. Ouen's Bay. "Taken while sweeping near St. Ouen's Bay" (Luff).	J	G	A	B
<i>Calioxys rufescens</i> , Lep., Don Bridge, St. Aubin's	J		A	
„ <i>elongata</i> , Lep., St. Aubin's	J			
* „ <i>brevis</i> , Ev. Common on the sandy regions with <i>Megachile argentata</i>	J			B
„ <i>vectis</i> , Curt.....			A	B
<i>Melecta armata</i> , Pz.		G	A	
<i>Megachile maritima</i> , Kirb. Common everywhere	J	G	A	B
„ <i>centuncularis</i> , L.			A	
„ <i>argentata</i> , Fab. Common on the sandy regions.....	J	G		B
* „ <i>muraria</i> , Ltr., recorded from Jersey in Ansted's "Channel Islands"	J			
<i>Stelis aterrina</i> , Pz., St. Aubin's	J			
<i>Osmia rufa</i> , Linn. This is probably the " <i>cornuta</i> " of Ansted's "Channel Islands." The Guernsey form is the var. <i>bicornis</i>	J	G		
„ <i>fulviventris</i> , Pz. St. Aubin's.....	J			
„ <i>aurulenta</i> , Pz.		G	A	
„ <i>spinulosa</i> , Kirb. St. Ouen's Bay, Don Bridge	J			B
<i>Anthidium manicatum</i> , L., St. Aubin's, Bel Royal	J	G	A	
<i>Eucera longicornis</i> , L., Bel Royal, 1 ♀	J	G		
<i>Saropoda bimaculata</i> , Pz. Common	J			B
<i>Podalirius retusus</i> , L. Recorded from Jersey in Ansted's "Channel Islands"	J	G		
„ <i>pilipes</i> , Fab. „ „ „ „	J	G	A	
„ <i>quadrimaculatus</i> , Pz. St. Aubin's.....	J			
<i>Psithyrus rupestris</i> , Fab. Recorded from Jersey in Ansted's "Channel Islands"	J	G		
„ <i>restalis</i> , Fourc., "2 at St. Aubin's" (Luff)	J	G	A	
„ <i>campestris</i> , Pz. Recorded from Jersey in Ansted's "Channel Islands"	J	G		B
<i>Bombus Smithianus</i> , White. Common, all the specimens of the pale form, not dark beneath, like those recorded by Mr. Luff from Alderney.....	J	G	A	B
„ <i>agrorum</i> , Fab., recorded from Jersey in Ansted's "Channel Islands"	J	G		
„ <i>hortorum</i> , L., St. Aubin's	J	G	A	
„ <i>Derhamellus</i> , Kirb.			A	
„ <i>pratensis</i> , L. Recorded from Jersey in Ansted's "Channel Islands"	J			
„ <i>lapidarius</i> , L., common	J	G	A	
„ <i>terrestris</i> , L., „	J	G	A	
<i>Apis mellifica</i> , L., „	J	G	A	B

St. Ann's, Woking:
May, 1902.

QUEDIUS OBLITERATUS, ER., CONFIRMED AS BRITISH.

BY JAMES H. KEYS, F.E.S.

For some considerable time Mr. E. A. Newbery and myself have been in doubt as to the identity of a species of *Quedius*, taken at Plymouth, and doing duty in our collections as *Q. suturalis*, Kies. By the kindness of Monsieur A. Fauvel, however, the matter has been settled, fifteen of the insects in question recently sent to that authority having been determined by him as *Q. obliteratus*, Er.

Although not included in Canon Fowler's work, nor in Cox's Handbook, this beetle can hardly be regarded as new to the British list, as it is enumerated by T. V. Wollaston in his "Note on the *Coleoptera* of the South of Ireland" (Zoologist, 1847, pp. 1570-6); and it is also ascribed to Great Britain, on the authority of Wollaston, by Fauvel in his Faune Gallo-Rhénane, vol. iii, p. 524. It is interesting, therefore, to establish the species as a British insect.

In general character and in the close and fine punctuation of its elytra *Q. obliteratus*, Er., is very like *Q. maurorufus*, Gr.; it should, therefore, be placed near that species in the British list; in colouring, however, it is similar to *Q. suturalis*, Kies., but this latter insect is abundantly distinct by reason of its coarser and much more remote elytral punctures.

The following details, if used as addenda to the synoptical table in Canon Fowler's *Coleoptera*, vol. ii, p. 238, line 21, will help to distinguish *Q. maurorufus* and *Q. obliteratus*.

A. Elytra finely and more or less thickly punctured.

a. Elytra brown or pitchy, often with the extreme margins and suture reddish *Q. maurorufus*, Gr.

b. Elytra brown or pitchy, with the suture, apex, sides and humeral streak yellow or reddish-yellow; often yellow, with the scutellar region, and a broad streak extending therefrom, and nearly reaching apex, black...

Q. obliteratus, Er.

Q. obliteratus, Er., has occurred to me in some numbers at Plymouth, in rotting straw used as a winter covering for mangolds, and two examples were recently taken from some straw in a wood several miles distant from the first-named habitat. I have also one from St. Margaret's Bay, taken by Mr. A. Beaumont. Mr. E. A. Newbery has an example taken from a wasp's nest at Bury, by Mr. W. H. Tuck; Mr. Champion has a specimen from Lee, Kent; and Mr. J. J. Walker has taken it in the Isle of Sheppey.

June 10th, 1902.

AN ANNOTATED LIST OF *ODONATA* COLLECTED IN CENTRAL SPAIN BY DR. T. A. CHAPMAN AND MR. G. C. CHAMPION IN JULY AND AUGUST, 1901.

BY ROBERT McLACHLAN, F.R.S., &c.

This forms the second instalment of an enumeration of the species of "*Neuroptera*" taken on the journey above noticed (*cf. ante*, pp. 129-130). The greater part of the materials were accumulated by Dr. Chapman, Mr. Champion confining his attention more especially to other groups. The number of specimens was very considerable, and an examination reveals 23 species, or nearly a quarter of those found in Europe. There is, I think, no reason to doubt that "experts," whose attention was not claimed by other Orders in the first instance, would have increased the List. The general aspect of the materials is, of course, meridional; nearly one half of the species occur in Britain, but the Spanish forms of the same species are often very considerably modified. I think the publication of the List cannot but be useful; in a country so little worked as is Spain, any items of local information are valuable, and both Dr. Chapman and Mr. Champion are to be congratulated on not forgetting that there are other insects besides those to which their studies have been especially directed.

LIBELLULINÆ.

LIBELLULA DEPRESSA, L. Tragacete, 1 ♀, T. A. C.

SYMPETRUM FLAVESOLUM, L., var. *LUTOLUM*, Selys. Tragacete, 1 ♂, T. A. C., Bronchales, many, T. A. C., 1 ♂, 1 ♀, G. C. C. All the individuals belong to the var. or "race" *lateolum*, which is probably the usual form in Spain. In it the yellow of the base of the wings in the ♂ is connected with a yellow nodal space, such as usually occurs in the ♀ in the ordinary form, which elsewhere is probably looked upon as only accidental in the ♂.

Dr. Chapman remarks especially concerning this insect as follows:—"In a little upland valley between Bronchales and Noguera, at between 4000 and 4500 ft., was a hollow that had all the appearance of being often a small pond. The whole surface was covered with vegetation, not all of a semi-aquatic character. It was obviously usually a pond, but dry for several months each year. We did not see any permanent water within a mile or two, but there may have been some. *S. flavolum* was in some numbers here, and a good many pairs were on the wing, the females ovipositing industriously along the sloping edges. There were also several other dragon-flies (such as *Lestes dryas*) flying with them, but I am not sure that any of these were ovipositing."

SYMPETRUM MERIDIONALE, Selys. Tragacete, 1 ♂, T. A. C. Albarracin, 1 ♀, G. C. C. True to the custom of the species this ♂ is most abundantly infested with the usual red *Acari* on the wings, and these probably induced Dr. Chapman to capture the insect owing to its singular appearance. The female has only very few, but they are present.

- SYMPETRUM STRIOLATUM*, Chp. Very common generally, T. A. C., G. C. C.
ORTHETRUM BRUNNEUM, Fonsc. Cuenca and Tragacete, 5 ♂, 2 ♀, T. A. C.
ORTHETRUM CÆRULESCENS, F. Cuenca and Bronchales, 5 ♂, T. A. C.

GOMPHINÆ.

ONYCHOGOMPHUS UNCATUS, Chp. Cuenca, 4 ♂, 4 ♀, T. A. C.; 1 ♀, G. C. C.
 The yellow of the body more extended than in northern examples.

ONYCHOGOMPHUS FORCIPATUS, L. Bronchales, 1 ♂, T. A. C. This should perhaps be referred to the var. *unguiculatus*, V. d. L.; the yellow is more extended than in northern examples, but less so than in those from Algeria.

CORDULEGASTRINÆ.

CORDULEGASTER ANNULATUS, Latr., var. *IMMACULIFRONS*, Selys. Cuenca, Tragacete, Bronchales, 14 ♂ (no ♀), T. A. C. Tragacete, 1 ♂, G. C. C. Among so many males it is curious there should be no female.

ÆSCHNINÆ.

ÆSCHNA CYANEA, Müll. Bronchales, 1 ♀, T. A. C.

ÆSCHNA MIXTA, Latr. Albarracin, 1 ♀, T. A. C.

CALOPTERYGINÆ.

CALOPTERYX SPLENDENS, Harris, var. *XANTHOSTOMA*, Chp. Cuenca, Tragacete, 7 ♂, 8 ♀, T. A. C., G. C. C.

CALOPTERYX VIRGO, L., var. *MERIDIONALIS*, Selys. Tragacete, Bronchales, 5 ♂, 1 ♀, T. A. C.

Few insects seem more susceptible to local influences than the *Calopterygineæ*, and these two familiar European species are striking instances. Few insects look more distinct than the northern typical forms of the *males* of *C. splendens* and *Virgo*. But all this is changed as we proceed south, and in South Europe the males have become so much modified as to approach each other in appearance (sometimes occasioning momentary perplexity); the *females*, however, are less susceptible to modifications.

AGRIONINÆ.

PLATYCNEMIS LATIPES, Ramb. Toledo, 1 ♂, T. A. C.; 1 ♀, G. C. C. Cuenca, 1 ♂, T. A. C. These three examples are certainly *latipes*, but they present notable variations. In all the ground colour may be termed white. In the ♂ from Toledo there is the usual dorsal thoracic black band (divided by the dorsal crest), and a very fine black humeral line; the abdomen is white to the end of the 6th segment, afterwards dusky with black spots, and there is a fine double ventral black line; in the ♀ from Toledo the colours are much the same, but the white is less pure, and there are traces of a fine double dorsal line; in the ♂ from Cuenca there is a second (sub-humeral) thoracic black line abbreviated anteriorly, segments 7—10 are nearly wholly black, and there is a solid black ventral line on segments 1—6; the appendages are identical in the two ♂. This tendency to variation (usually of a dimorphic character) is perplexing in the genus.

ISOHNURA GRAELLII, Ramb. Cuenca, T. A. C. and G. C. C., many. Albarracin, T. A. C. Lago de Uña, G. C. C.

ENALLAGMA CYATHIGERUM, Chp. Lago de Uña, 2 ♂, 2 ♀, G. C. C. In both males the ospitate marking of the second segment has no tail, and is scarcely more than a lunule.

AGRION CÆRULESCENS, Fonsc. Albarracin, 5 ♂, T. A. C., G. C. C.

AGRION MEROURIALE, Chp. Cuenca and Bronchales, 3 ♂, T. A. C.

AGRION LINDENII, Selys. Cuenca, 1 ♂, T. A. C.

PYRRHOSOMA NYMPHULA, Sulz. (*minium*, Harris). Cuenca, Tragacete, Bronchales, Albarracin, many examples, T. A. C.

LESTES DRYAS, Kby. (*nymphæa*, Selys). Cuenca, Bronchales, Albarracin, 8 ♂, 3 ♀, T. A. C.

LESTES VIRGENS, Chp. Albarracin, 1 ♂, T. A. C.

SYMPYCA FUSCA, V. d. L. Cuenca, T. A. C., G. C. C., many examples.

Lewisham, London :

May 11th, 1902.

NOTES ON THE FEMALES OF ARCTIC AND NORTHERN SPECIES OF *APATANIA* (PLATE III).

BY KENNETH JOHN MORTON, F.E.S.

In dealing with *Trichoptera* from a purely systematic point of view, it has been the practice, unacknowledged, I think, and perhaps unconsciously followed, to give less attention to the study of the females than to the other sex: at least this applies in my own case, if any other worker objects to the general statement. Such a practice is without difficulty accounted for. The examination and comparison of the wonderfully complicated appendages of the males are at once comparatively easy and interesting, while in the females the parts are simpler, they apparently vary less amongst the species, are without striking points in structure, and, most difficult feature of all, in drying the parts shrink much and very unequally.

In the genus *Apatania* the females have an importance which does not permit of their being ignored, or even of their being dealt with in a superficial way. The occurrence of parthenogenesis in the genus must be regarded as pretty well established, and two species have been described which, so far, have only been found in the ♀ sex. And in addition to the difficulties imported into the genus by the existence of species of which only females are found, there is the further difficulty—one probably indirectly connected with the phenomenon of parthenogenesis—that one sometimes meets with quantities of females unaccompanied by males in a given locality. For instance, *Apatania Wallengreni* may sometimes be taken in large numbers, the percentage of males being very small, and in some gatherings apparently of this species males are absent altogether. It may be that in such cases the percentage of males has originally

been small, or that sex has passed off before the other. Whatever may be the cause, the practical result is that one has frequently to determine the species of *Apatania* from females alone, and this is none too easy for the reasons given in the opening paragraph.

When on the Dovrefjeld in 1900, I took a number of specimens, exclusively females, which I could not determine satisfactorily, and I have just passed through my hands a much larger collection, made by Herr Embr. Strand, during the past summer in Arctic Norway. The latter collection included numerous males of *Apatania stigmatella*, Zett., but there were present many female examples which were evidently not of that species; and even amongst the females which were associated with *A. stigmatella* from the same locality, there were one or two as to which I could not satisfy myself that they belonged to that species. At this point it occurred to me to try a method employed by Dr. Ris, in connection with the study of the smaller *Perlidae*, namely, preparing the bodies as microscopic objects by rapid boiling for a minute or two in caustic potash, whereby shrivelled up bodies are practically restored to their original forms. I did not expect more than to get a better idea of the form of the vulvar scale and of the external plates of the apex of the abdomen, and I was accordingly pleased to find that in addition to the restoration of form the preparations showed an elaborate internal apparatus of rods and plates, no doubt connected with the process of oviposition. As this apparatus was strongly chitinized, the possibility of its varying in shape in the different species at once suggested itself. A number of preparations of all the available species were then made with a result that was satisfactory, and the object of the present paper is to give at least a preliminary idea of the structure referred to. I have neither the time nor the knowledge to allow me to discuss the true nature and functions of the apparatus, and what I have to say concerning it is entirely from the point of view of helping towards a surer basis for the determination of the females of the species concerned. As the female of *A. stigmatella* has not to my knowledge been previously figured, the information I give here regarding it may, of itself, give some little value to these notes.

Wallengren divides the genus *Apatania* into two sub-genera, *Apatania* and *Apatelia* :—

- A. Sub-costa and radius of the hind-wings near their outlet into the fore margin considerably separated from each other.....*Apatania*.
- AA. Sub-costa and radius of the hind-wings near their outlet into the fore margin running together or crossing each other.....*Apatelia*.

On this character alone, the second sub-genus is, so to speak, more typical, the connection between the sub-costa and radius being evidently akin to the peculiar condition which these nervures assume in the fore-wings. This character in the hind-wing is obscure, and is not very easily made out in many specimens with the hand lens. The division, however, is in certain respects natural.

On the above distinction in the neururation, the five species referred to below would fall into the sub-genera thus:—

Apatania..... *Wallengreni* and *stigmatella*.

Apatelia *muliebris*, *arctica* and *fimbriata*.

A. muliebris is quite different from both groups in some respects, which will be alluded to hereafter.

In giving neururation-characters for his species, Wallengren seems to use the points which Mr. McLachlan alluded to in his descriptions, namely, the condition of the *fifth apical cellule* in the fore-wings, and the condition of the *fifth apical fork* in the hind-wings, with respect to its connection with the sector above it. But Mr. McLachlan's references were indications of a tendency, rather than an actual statement of characters, and at p. xlv, Mon. Rev. Eur. Trichoptera, Supplement, he renounced any faith he ever had in the second character, and I fear the value of the former must fall in proportion to the increase in the number of localities from which any particular species is available for examination. There is a probability that in each locality a particular type of neururation is dominant, but not stable. The following analysis will serve to show that the above characters cannot be used with any degree of certainty. A quotation from the Mon. Rev. is given first, followed by the results of the examination of the specimens now before me. With regard to the first character, the condition of the *fifth apical cellule* in the fore-wings, the following terms are used:—

“Biangulate” signifies that the two nervures arise from the anastomosis at two separate points.

“Anastomosis” signifies that the two nervures arise from the anastomosis at the same point.

“Footstalk” signifies that the cellule is connected with the anastomosis by a foot stalk.

The connection of the 8th apical fork with the sector above it in the hind-wings is explained by the following terms:—

“Nervure” means that there is a distinct nervure connecting the two.

“Point” means that the two are connected at or by a point.

"Crossing"—almost similar to the last, but giving the impression that the nervures cross each other.

"Confluent"—when the nervures run together for a distinct space.

Where two indications are given, read—left wing and right wing.

A. WALLENGRENI :

	FORE-WINGS.	HIND-WINGS.
Mon. Rev.	Slight footstalk ; perhaps more frequently anastomosis	Small nervure.
Lapland	Anastomosis	Point.
Finland	Footstalk	"
"	Anastomosis	Minute nervure.
"	"	"
"	"	"
"	Long footstalk	"
Rannoch (6 ex.) ...	Footstalk	Nervure.
"	"	Point.
" (2 ex.) ...	"	Minute nervure.
"	"	Crossing.

A. STIGMATELLA :

Mon. Rev.	Not stated.	
Nordreisen, Arctic		
Norway	Biangulate—Anastomosis	Crossing.
„ (7 ex.) ...	Anastomosis	Minute nervure.
„	„	Confluent.
„	„	Minute nervure.
Lapland	Biangulate—Anastomosis	Crossing.
„	Anastomosis—Footstalk	„
„	Footstalk—Anastomosis	?
Alten	Anastomosis	?

A. MULIEBRIS :

Mon. Rev.	Anastomosis almost invariably	Confluent or minute nervure.
Arundel	Anastomosis—Biangulate	?
"	Minutely biangulate—Anastomosis	Confluent.
"	"	Crossing.
Leamarkshire	Anastomosis	Confluent.
"	"	Slightly confluent.
Bohemia	Anastomosis—Slight footstalk	?
"	Anastomosis	Confluent.
Haslithal	Biangulate—Anastomosis	Nervure.
"	"	"
"	Anastomosis—Biangulate	"
" (5 ex.) ...	Biangulate	"

A. ARCTICA :

Mon. Rev.	Short footstalk or Anastomosis	Minute nervure or point.
----------------	--------------------------------	--------------------------

	FORE-WINGS.	HIND-WINGS.
Kaafjord (5 ex.)	Anastomosis	Nervure.
"	Footstalk—Anastomosis	"
Bosekop	Anastomosis—Footstalk	"
Nordreisen	Footstalk	?
Domaas	Anastomosis	Nervure.
Fokstuen	Biangulate—Anastomosis	"
" (5 ex.)	Anastomosis	"
Spitzbergen	Minute footstalk	?
"	"	?
Nova Zembla	Anastomosis	Nervure.
"	"	Shortly confluent.
Vladivostok*	"	Point.
Sweden†	Minute footstalk	Crossing.
Iceland	Anastomosis	Minute nervure.

A. FIMBRIATA :

Mon. Rev.	Short footstalk or Anastomosis	Confluent in long space or at a point.
Ireland	(many examples). Distinct footstalk	Shortly confluent or crossing.
Bohemia	Anastomosis	Minute nervure.

A. majuscula, McL., and *A. inornata*, Wall., I do not know, but one of the characters given for *majuscula* is the confluence of the 5th apical fork with the sector above it at a point. I gather that one of Wallengren's characters for *inornata* is the presence of a connecting nervule. As a reliable criterion for separating two very closely allied species, I fear the details given above prove that it is quite inadequate.

I now proceed to refer to the apical abdominal segments, and to the internal apparatus. With regard to the latter, although there are other parts connected with it, my comparisons will refer to the following:—

- (1) The paired lateral blades ;
- (2) The central triangular piece ;
- (3) The central foot-shaped piece.

It is difficult in some preparations to make out all the parts satisfactorily, but as a rule these three can be traced without trouble.

APATANIA WALLENGRENI, McL.

The formation of the 9th segment and of the ovipositor makes the determination of the ♀ of this species an easy matter in most cases.

The 9th dorsal segment is very distinct; hind margin well-defined, slightly produced at either side and faintly in the middle when viewed from above. Tubular

* May represent a separate species.

† More probably *fimbriata*; a large example. Neither of these two examples were "prepared."

piece seen from above is split, the superior opening being filled with a short fringe-shaped, slightly upturned lobe or valve, beset with long hairs. Vulvar scale moderately long, no free side lobes; sides of the segment produced into a distinct angle ventrally, the angle being followed dorsalwards by a distinct excision.

The side blades of the internal apparatus are strong and well-defined, apex obliquely truncate. Central triangular piece long and slender at the apex; foot-shaped piece has the "heel" slightly broader than the fore part.

A. STIGMATELLA, Zett.

The 9th segment large, when viewed from above, pointed in the middle of the posterior margin, but the segment in dry examples is not always easy to separate from the tubular piece, which above is divided into two sections pointed at the apex, the points being usually visible even in dry specimens. The vulvar scale has usually the appearance of having the apex truncate, but the scale in these insects is very slightly chitinated, and the form may therefore vary a little; the character, nevertheless, seems real. There are no side lobes. The sides of the segment seen from beneath are slightly produced, the angle being followed by a shallow excision.

In all the preparations the side blades are rather indistinct; the central triangular piece is elongated as in *A. Wallengreni*, while the foot-shaped piece has the "heel" very narrow in all the preparations.

A. MULIEBRIS, McL.

The 9th segment is rather large; when viewed from above the margin is rounded; the tubular piece from the same point of view is usually only visible as a little rounded process.

The vulvar scale has a prominent middle lobe, but I am unable to satisfy myself that true side lobes exist. In certain preparations the internal apparatus is unusually exerted, and the curious lateral blades are in a position in which they might readily be taken for the side lobes of the vulvar scale. The segment, behind the vulvar scale, has on either side an oval lobe beset with hairs.

The internal apparatus is very different from all the other species examined, with respect to the form of the apex of the lateral blades; a better idea of which will be gained from a reference to the figure than from a description. The central triangular piece is of a form similar to that found in the two preceding species, while the foot-shaped piece in the "heel" portion seems to assume a pocket-like form, which is more characteristic of the two species which follow.

A. FIMBRIATA, Pictet.

The 9th segment is rounded on the margin when viewed from above, and the tubular piece is as a rule little visible in preparations excepting as a little rounded process.

The vulvar scale is relatively strong in its middle lobe, which has sometimes a slightly clavate form, but the preparations vary in this respect. The side lobes are strongly defined, slightly blunt and hairy. The internal apparatus is short and robust in this species; the central triangular piece is short and broad, while the foot-shaped piece has a relatively very large "heel" or pocket (the figure, however, shows, I think, the maximum development in this respect).

One preparation of an insect taken along with *arctica* (Fokstuen) seems to belong to this species.

A. ARCTICA, Boheman.

The 9th segment, viewed from above, forms in its chitinized part a narrow transverse band. The tubular piece, assuming all the preparations to belong to one species, shows a great variety of form, probably on account of the varying degree of exertion, in some examples the apex of the abdomen being quite blunt, while in others it is produced into an ovipositor.

The vulvar scale has a prominent middle lobe, and very distinct hairy side lobes, triangular in form, but varying in breadth, according to the position from which they are seen. In this species, and in *fimbriata*, there is a large horizontal plate with rounded outer margin under the tubular piece.

In the figure given of the internal apparatus the rods as shown there are not usually visible in this shape, being apparently covered by the large lateral blades. The central triangular piece is in this species relatively broad. In practically all the Norwegian examples the "heel" is slightly excised, and in this respect different from the examples from Spitzbergen and Iceland.

It is unfortunate that I have not been able to compare undoubtedly authentic ♀ examples of *Apatania majuscula*, McL. It is just possible that one of the forms included under *arctica* is really *majuscula*. While it is highly probable that most of these boreal females that are grouped under the name of *arctica*, belong to a parthenogenetic form, there must not be over confidence in this, especially with respect to the insects from the mainland. I have alluded to the remarkable discrepancies in the numbers of the two sexes of a non-parthenogenetic (using the expression not in an absolute sense) species, suggesting that the males had passed off. The males of some of the species no doubt appear early, *A. majuscula* being recorded from Irkutsk in May. When collectors reach Arctic or Alpine Norway in time to see *Chionobas Norna* and *Argynnis Freija* in rags, they may be also rather late to catch the males of certain species of *Apatania*.

In making the investigation on which the above notes are based I have made free use of Herr Strand's material, and I am also indebted in an exceptional degree to Mr. McLachlan for placing at my disposal, without restriction, valuable material from Central Europe and from high northern latitudes, including Spitzbergen, Nova Zembla and Iceland.

The figures of the abdomen from above and beneath are all drawn to the same scale, excepting No. 11; the figures of the internal apparatus being on a still larger scale.

EXPLANATION OF PLATE III.

APATANIA WALLENGRENI.

1, apex of abdomen from above ; 2, ditto from beneath ; 3, internal apparatus from beneath.

APATANIA STIGMATELLA.

4, apex of abdomen from above ; 5, ditto from beneath ; 6, internal apparatus from beneath.

APATANIA MULIEBRIS.

7, apex of abdomen from above ; 8, ditto from beneath ; 9, internal apparatus from beneath.

APATANIA FIMBRIATA.

10, apex of abdomen from above ; 11, ditto from beneath ; 12, internal apparatus from beneath.

APATANIA ARCTICA.

13, apex of abdomen from above (Spitzbergen) ; 14, ditto from above, more exerted (Kaafjord) ; 15, ditto from beneath (Spitzbergen) ; 16, ditto from beneath, in part, more exerted (Kaafjord) ; 17, ditto from beneath, in part, much exerted (Kaafjord) ; 18, internal apparatus from beneath (Spitzbergen) ; 19, base of foot-shaped piece (Kaafjord, Nordreisen, Braendhaugen, &c.).

13, Blackford Road, Edinburgh :
March, 1902.

HISTORICAL NOTES ON *APORIA CRATAGI* IN BRITAIN.

BY C. W. DALE, F.E.S.

The only part of Britain where this species still exists is in the county of Kent. Accounts of its occurrence there are given in the Ent. Mo. Mag., vols. xxiii and xxiv ; Entomologist, 1896, p. 332 ; and Ent. Record, 1901, p. 306. It formerly existed in the following counties :—

SURREY.—J. F. Stephens wrote in the Zoologist, vol. v, p. 1616, "The first visit I paid to Coombe Wood, on May 24th, 1810, I met with several specimens of *cratagi*;" and in his Illustrations, "In June, 1810, I saw it in plenty at Coombe Wood, and in the following year I captured several on Muswell Hill ; since which I have not seen any at large."

MIDDLESEX.—In a footnote to p. 1616 of the Zoologist, vol. v, Mr. Stephens also wrote : "The late Mr. Haworth told me that he found this insect at Little Chelsea for nearly thirty successive years ; but about 1818 it disappeared from that neighbourhood."

SUSSEX.—See Ent. Mo. Mag., vol. xxiii, p. 217.

ISLE OF WIGHT.—Rare, Quarr Copse, Alfred Owen (Newman's Butterflies, 1871).

HAMPSHIRE.—Near Petersfield, Rev. H. Harpur Crewe ; Bishop's Waltham, Southsea, H. Moncreaff ; Farnham, common in 1847, Emsworth, W. H. Draper (Newman's Butterflies). An interesting history is given of its occurrence in the New Forest by Mr. Goss in the Ent. Mo. Mag., vol. xxiii, p. 218.

CORNWALL.—A note appeared in *Science Gossip* of January, 1893, mentioning the occurrence of specimens as late as 1891 (Lucas, *Brit. Butterflies*).

DORSETSHIRE.—Glanvilles Wootton, sparingly; last taken by J. C. Dale on June 10th, 1815.

DEVONSHIRE.—See *Ent. Mo. Mag.*, vol. xxiii, pp. 256, 277.

SOMERSETSHIRE.—Langport, in June, 1833, W. Paul; Clevedon, A. E. Hudd (*Newman's Butterflies*).

GLOUCESTERSHIRE.—Near Bristol, in plenty, Capt. Blomer, in 1831; also in 1871 and 1872, J. Merrin.

MONMOUTHSHIRE, HEREFORDSHIRE, and GLAMORGANSHIRE.—See *Ent. Mo. Mag.*, vol. xxiii, p. 219. A note appeared in the *Entomologist* for 1895 (vol. xxviii), p. 19), respecting the finding of larvæ and imagines in Monmouthshire in 1894!

NORTH WALES, SHROPSHIRE, WORCESTERSHIRE, and STAFFORDSHIRE.—See *Ent. Mo. Mag.*, vol. xxiv, p. 39. Evesham, in Worcestershire, is also given in *Morris's Butterflies*.

BREKSHIRE.—Enborne, J. C. Dale, 1807 to 1810; Burghfield, near Reading, Rev. C. S. Bird, 1834.

BEDFORDSHIRE.—Near Bedford, Rev. Dr. Abbott, 1799; from one pupa he bred twenty ichneumons.

HUNTINGDONSHIRE.—Whittlesea Mere and Monk's Wood, on July 4th and 6th, 1833, in great plenty, J. F. Stephens (*Entom. Mag.*, vol. i); Monk's Wood, plentifully on June 3rd, 1841, H. Doubleday.

NORTHAMPTONSHIRE.—Barnwell Wold, 1852, &c., Rev. W. Bree (*Zoologist*, vol. x, p. 2351). See also *Ent. Mo. Mag.*, vol. xxiii, p. 218.

NORFOLK and SUFFOLK are merely given as counties for it in Curtis' *Brit. Ent.*, but probably correctly, as Mr. Curtis was a native of Norfolk, and in the early days of Ray, Moses Harris, and Lewin, it was considered too common a species to give localities for. Indeed, in his "*Hints to Proprietors of Orchards*," published in London in 1816, Salisbury considers it a common garden insect, and states that "it commits great destruction every spring, not only to the apple trees, but other kinds of fruit trees; it is very subject to the attacks of the ichneumon flies."

Glanvilles Wootton, Dorset:
April, 1902.

Notes on two British Sawflies.—

Pachyprotasis antennata, Klug.—I have very seldom seen this species in British collections, but Miss E. Chawner tells me it is quite common at Lyndhurst, and she has kindly supplied me with a number of specimens of both sexes bred by herself this year and last. Some of the insects were quite freshly killed, and one actually alive, when she gave them to me; and I was surprised to find their colour, in this condition, quite different from that which they afterwards assume by fading, and which is attributed to them in all descriptions known to me. When absolutely fresh *P. antennata* has the costa and stigma of a rich and vivid green, though paler in fact, but for its slender shape and long antennæ it might be mistaken for a highly

coloured *Rhogastera picta*. Within a week after death the stigma in all my specimens became completely black; and the body markings were already beginning to fade from green to yellow—this change, however, being as yet only just perceptible. I think this worth recording, as neither in Klug's original description, nor in the later ones of Cameron and André, does the word "green," or any equivalent of it, occur at all—they speak only of black and yellow, having no doubt described from specimens which had lost the original coloration. The blackening of the stigma seems to me a remarkable phenomenon, and I should be glad to know why in this respect *P. antennata* differs from other sawflies—e. g., various species of *Pteronus* and *Rhogastera*, in which the stigma is either green permanently, or, if it fades, fades to white or yellow. In the green bodied *Tenthredo mesomela*, L., the stigma is black; but I believe it is so always, even in living specimens. I do not know any parallel to the change from green to black which takes place with such curious rapidity in the stigma, &c., of *P. antennata*. So far as I can see it is not a mere external blackening of the surface, but a complete conversion of the colouring substance contained in the stigma from green to black. On the other hand the fading of the green body markings into yellow seems to occur almost universally in sawflies of this coloration, though it sometimes takes years to complete the process.

Strongylogaster cingulatus, F.—In a previous note I have recorded the occurrence of numerous males of this species at Swanage, although Cameron and Smith both found this sex so rare, that the former writer concludes that the species is mainly parthenogenetic. This spring, when collecting with Dr. Sharp near Lyndhurst at the end of May, I again found males in abundance, but, strange to say, not on the ferns where the females were common. Between us we took some 30 or 40 specimens, flying up one after another to circle about the tip of a little isolated beech seedling (a mere dry stick with half-a-dozen leaves on it) during a short sunny interval, about 1.30 p.m. on a dull day. And I saw a few others behaving similarly round a spray of wild rose hard by. What was the attraction to them I do not know, but it was curious to see them come up one after another, wheel about once or twice, and then fly away. There was never a crowd of them, but a constant succession, as long as the gleams of sunshine lasted. I believe there may have been one or two also among the ferns with the females, but if so, it was quite the exception. As a rule the *females* stuck to the fern, and the *males* would have nothing to do with it; whereas at Swanage, if I remember rightly, the fern was frequented by both sexes indifferently and exclusively.—F. D. MORICE, Brunswick, Woking: June, 1902.

The identity of Eucera longicornis, Linn.—At the request of Herr J. D. Alfken, I have recently examined the type specimens of this species in the Linnean Collection at Burlington House, and they are clearly referable to the species generally known on the Continent as *difficilis*, Perez, and described under this name by Friese (*Apidæ Europææ*), and not to the species described by him as *longicornis*, Linn. The males of the two species, though very much alike, are easily distinguished, that of *longicornis*, Linn., = *difficilis*, having the posterior metatarsi slightly curved, and that of the other species (which will require another

name) having the metatarsi quite straight. In this country we have only one species, viz., that with the curved metatarsi, which has always stood with us as *longicornis*, L., and as it proves to be identical with that of Linnæus, no change will be necessary in our List—but the species known on the Continent as *longicornis*, with the straight metatarsi, will have to be renamed. What name should be applied to it is open to considerable doubt, as the synonyms of *longicornis*, L., according to Dalla Torre are numerous—there appears to be a choice between *linguaria*, Fab., *furax*, Rossi, *tuberculata*, Fab., *strigosa*, Pz., *vulgaris*, Spin., *bicincta*, Lep., *vidua*, Lep., *nigrescens*, Perez. Reference to the types of these will be necessary before deciding on the name to be selected, and I therefore refrain from offering any suggestion on this point.—EDWARD SAUNDERS, St. Ann's, Woking: June 11th, 1902.

A Correction.—In the Report of the Birmingham Entomological Society, *ante* page 136, is a slight error which I should like to correct, viz., *Pompilus cinctellus*, *Stelis aterrima*, *Agania hircana*, *Pseudagenia punctum*, all from Wyre Forest, being given as new to the district. *Pompilus cinctellus* has been taken several times by Mr. Martineau, and there is an old record of *S. aterrima* by the Rev. T. A. Marshall. The other two, *A. hircana* and *P. punctum*, are I believe new records for Wyre Forest.—RALPH C. BRADLEY, Moseley, Birmingham: June 6th, 1902.

Ants displaced by Woodlice in New Zealand.—At page 132 *ante*, lines 15 and 29, where Mr. W. W. Smith writes of "The introduced English Woodlouse (*Porcellio grangei*)," to what species does he refer? No woodlouse is known in England by this name. Presumably "*grangei*" *loc. cit.* is a mis-reading of *graniger*, White (1847), which Miers in 1876 unfortunately failed to synonymize (as he ought to have done, having the type-specimens under his eyes) with *P. scaber*, Latr. But in this case, why is the synonymy given instead of the name? and why should the species be referred to as English especially, rather than European or almost cosmopolitan?—A. E. EATON, Woodlands, Seaton, Devon: June, 1902.

The National Collection of British Lepidoptera.—As this Collection in the Natural History Museum at South Kensington is now being re-arranged, revised and augmented, a convenient opportunity is afforded for making it what we all wish it to be, that is, thoroughly representative of the *Lepidoptera* of the British Islands.

One very important improvement would be the addition, in as much detail as possible, of the early stages of each species. It is hardly to be hoped, however, that this desirable end could be obtained in any way approaching completeness without the assistance of the entomological public. We therefore venture to ask our readers to help the Museum to effect this useful work by contributing whatever material, either living or preserved, that they may have to spare. There are already larvæ and pupæ of a few species in the Collection, but all the examples are not good, so that gifts of ova, larvæ and pupæ of any species would be acceptable. Lists of presentations, with names of donors, will be published in this Journal each month.—EDS.

Xenolechia athiops in Dumbartonshire.—During the last four or five years I have taken this insect, mostly isolated specimens, on the Moors here. This year I resolved to make a special endeavour to obtain a number (as some of my correspondents stood in need of it), and I was fortunate in succeeding beyond my most sanguine expectations. On April 22nd I got one specimen somewhat worn; the weather was bitterly cold, and the season of the most backward kind, strong north-east winds were the general order of things, and most of the insects were late in appearing. I understood that unless I discovered something of the habits of the species I wanted I stood a poor chance of securing many specimens. In considering what would be the most likely part of the Moor to get some sheltered spots, I remembered that at one of the most likely there was a burnt patch of heather. This part had some years ago yielded a few specimens. Taking this and the fact that *Phycis carbonariella*, a similarly coloured species, occurring later in the year, must be looked for in just such spots, I resolved to give it a trial; I was most successful. Before I had been half an hour on the burnt part I had netted a very considerable number, and before I left off I had a sufficient number to satisfy my correspondents. The insects have a most aggravating habit of flying very low among the burnt stems, and an incautious sweep of the net means ruin to it and not to the insect. Even when settled on the ground, littered as it is with burnt twigs, they are perfectly secure; they are so similar in colour to their surroundings that the sharpest eyes fail to detect them. Another habit they have is that of settling on the stems near the top, and running down to the roots on the under-sides when the stems are bent. While I was on the ground a shower of rain succeeded a cold wind, and although I had repeatedly traversed the portion in which they were commonest without seeing a single specimen, whenever the rain fell they sprung into life and appeared to be more numerous than ever, in fact I swept four into my net at the same time. The flight seemed to be for the purpose of obtaining shelter, as it did not last long, and I took one specimen which was about to settle on the lee side of a fence post. After the rain was past I observed a good many on the wing in the sunshine along with *Peronea mixtana* and *Amphisa prodromana*.—J. R. MALLOCH, 17, Dilliship Terrace, Bonhill: May, 1902.

Society.

ENTOMOLOGICAL SOCIETY OF LONDON: May 7th, 1902.—The Rev. Canon FOWLER, M.A., D.Sc., F.L.S., President, in the Chair.

Mr. Charles R. Chichester, B.A., M.B., L.R.C.P., of Bathurst, Gambia, West Africa, and Clonmore, Co. Cork, and Mr. J. H. Lewis, of Ophir, Otago, New Zealand, were elected Fellows of the Society.

Mr. H. W. Shephard-Walwyn exhibited a gynandromorphous specimen of *Anthocharis cardamines*, taken near Winchester in 1899. The left side was that of a normal male, the right that of a normal female, with the exception of a splash of orange pigment on the under-side of the primary. Mr. H. Goss, two male specimens of *Saturnia carpi* from Essex, bred on whitethorn, and three males of the same species caught in Surrey by the aid of bred (virgin) females. He remarked that as a rule bred specimens were smaller than wild, but the bred Essex specimens were

larger than those captured in Surrey. The Essex specimens were light in colour, while the Surrey specimens were not only much smaller in size, but very dark, probably because their larvæ had fed upon *Erica* or *Calluna*. Colonel C. Swinhoe announced the emergence of *Cossus ligniperda* in the Zoological Society's Gardens from a pupa received in a piece of wood from South Africa, and said it was remarkable that the species should have been introduced there, and then brought back to Great Britain. Professor E. B. Poulton, two *Euplexina* captured in Fiji by Professor Gilson, and presented by him to the Hope Department. The species, which belonged to the different genera *Nipara* and *Deragena*, bore the closest superficial resemblance to each other, affording an interesting example of Müllerian or Synaposematic likeness; also several specimens of *Smerinthus populi* which had been exposed during the pupal stage to the intense heat of July, 1900. In consequence of this "forcing" the moths emerged towards the end of that month, and were markedly different in colour from the normal, being much paler in tint with less distinct markings, and the red of the hind-wings of a very different shade. They were also smaller, but this effect may have followed from the larvæ having been brought up under artificial conditions in the Oxford Museum. The Rev. A. E. Eaton, drawings illustrating the wing of *Pampterinus latipennis*, Etn. MS., a remarkable Dipterous fly of the Family *Psychodidae*, from New Guinea, in the collection of the Hungarian National Museum, Budapest. This wing is oblong-ovate in form and of extraordinary breadth, being considerably dilated in the areas posterior to the postical vein, and still more so in the marginal area, which is the broadest of all. The submarginal area at the costa is slightly wider than the full span of the radial fork, and each of them is wider than any of the remaining areas that have not been mentioned above. The short mediastinal vein near its ending in the subcosta is joined by a perpendicular cross-vein to the sub-costa, where the wing (deeply concave thereabouts) is crossed by a crease. The axils of the radial and pabrachial forks are nearer to the cross-veins than in *Pericoma fusca* (sketches exhibited), the type of species to which the New Guinea fly has most affinity. Both surfaces of the wing are clothed with minute truncate obovate-cuneate imbricated scales inserted in the membrane, as well as in the veins.

Professor Louis Compton Miall, F.R.S., communicated a paper "On a new cricket of aquatic habits found in Fiji by Professor Gustave Gilson. Mr. R. McLachlan said that this was not the first time an *Orthopteron* of aquatic habits had been noticed. Mr. Pascoe had brought back one such insect from the Amazons, which leaped on the leaves of aquatic plants, and there was a recent record of another species with kindred habits being found in Java.

Professor E. B. Poulton remarked that Professor Miall was interested in insects which skate upon the water, but there were also some *Orthoptera* which were aquatic in another sense. Mr. Annandale had brought back from the Malay region an aquatic insect of this Order (a *Blatta*), which was far too heavy to skim upon the surface. The President added that there was some *Coleoptera* which, although non-aquatic, were so specialized as to be able to use their limbs in a similar manner to water-beetles. Dr. T. A. Chapman, M.D., F.Z.S., communicated a paper on "Asymmetry in the Males of Hemarine and other Sphingæ." Mr. E. Meyrick, B.A., F.Z.S., communicated a paper on "*Lepidoptera* from the Chatham Islands."

—H. ROWLAND-BROWN, Hon. Sec.

REVISION OF THE NOMENCLATURE OF *MICRO-LEPIDOPTERA*.

BY THE RIGHT HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S., &c.,

AND

JOHN HARTLEY DURRANT, F.R.S.

(Continued from Vol. XXXVIII, page 29).

BILLBERG'S ENUMERATIO (1820).

In the third edition of his Catalog (following Scudder) Staudinger has adopted certain of Billberg's logonymic genonyms sinking as their synonyms other genonyms well-known to all Lepidopterists. That the names now employed are unfamiliar does not necessarily imply that their rescue from oblivion is unjustifiable, but as logonyms were also used for a few genera of *Micro-Lepidoptera* it becomes incumbent on us to publish decisions which have already been expressed *in litt.* We have been asked whether there is any evidence that the book was ever published, and whether it is not probable that it was merely the privately printed catalogue of a private collection; we have also been asked whether we regard Billberg's names as valid genonyms.

Through the extreme courtesy of Professor G. Lindström, we were enabled in 1892 to study the copy in the Library of the Academy of Sciences, Stockholm, and Durrant made a careful transcript of the introduction, and of the pages relating to the *Lepidoptera*. The title and collation are as follows:—"Enumeratio | Insectorum | in | Museo | Gust. Joh. Billberg. | Reg. Svec. Judicii Decasterii cameralis Consilarii. | Reg. Ord. de Stella polari Equitis | Acad. et Societt. Svec. et exter Membri. | Typis Gadelianis, 1820" [= HOLMIAE].

4° pp. (i-iv) + 138 [pp. (i-iv) unpagéd = (i) title; (ii) blank; (iii-iv) Expl. Sign. Auct. *Lepidoptera*, pp. 75-93].

N.B.—The abbreviation "Eg." = "Auctor hujus operis." From general appearance the book would appear to have been properly published, and has been accepted as published by those who have dealt with it.

As little appears to be known among Lepidopterists about Billberg, his *Enumeratio*, or his *Collection*, it may be well to reprint what of importance is known to us on the subject.

Hummel (A.D.), *Essais Entomologiques*, IV, 3-4 (St. PETERSBOURG, 1825), wrote thus of "Enumeratio Insectorum in Museo G. J. Billberg. 1820. in 4":—

"Mr. Ego a fait tout son possible pour augmenter la confusion dans la synonymie des genres, en créant de nouvelles dénominations absurdes et qui ne prouvent qu'une seule chose: l'envie de placer son Ego après des noms tels qu'Olethrus au lieu

de *Lethrus*, *Hopla* au lieu de *Hoplia*, *Coprias* au lieu de *Copris*, *Chelonites* au lieu de *Chelonarium*, *Anabias* au lieu d'*Anobium*, *Dixus* au lieu de *Ditomus*, *Harpalus* au lieu de *Harpalus*, *Apius* au lieu d'*Apion*, *Dones* au lieu de *Doros*, etc., etc. Heureusement les exemplaires de cette monstrueuse énumération sont devenus fort rares, parce que la plus grande partie de l'édition a été la proie de l'incendie qui en 1822 détruisit la précieuse bibliothèque et les belles collections de l'auteur. Cet événement, si déplorable sous tous les autres rapports, et qui a inspiré le plus vif intérêt pour Mr. Billberg à tous ceux qui aiment l'Histoire naturelle, ne fut cependant pas sans utilité par les bornes qu'il mit à des innovations mal fondées et passablement ridicules."

Hummel, *Essais entomologiques*, V, pref. p. [iii] (1826), wrote further in November, 1825:—

"On vient de m'informer que mon respectable compatriote, Monsieur Billberg de Stockholm, s'est trouvé très-offensé des observations que j'ai hasardées sur son *Enumeratio Insectorum*, dans le *Numero IV.* de mes *Essais*, page 3, et qu'il y a reconnu autant d'ignorance que de méchanceté de ma part. Comme il en juge ainsi, je dois m'avouer coupable d'avoir pris dans ces observations un ton qui ne convient point à un simple amateur de l'Entomologie, fort éloigné de prétendre à l'honneur d'être compté parmi les savans. La colère est la plus pénible des sensations, et si pour un moment j'en ai fait éprouver à Mr. Billberg, je m'empresse de lui en demander pardon publiquement et de tout mon cœur."

Hagen, *Stett. Ent. Ztg.*, V, 79, No. 17 (1844), wrote thus of

"Die Sammlung des Kammerrath Billberg.

Seine erste Sammlung verbrannte bei einer Feuersbrunst. Eine später angelegte verkaufte er nach England, und hat darauf eine dritte angelegt. Keine ist von bedeutendem wissenschaftlichen Werthe gewesen, alle aber schlecht konservirt. Ein höchst unkritischer Catalog: *Enumeratio insectorum* in museo Billberg, Stockholm, 1820, in 4to, ist wohl kaum in den Buchhandel gekommen."

Hagen, *Bibl. Ent.* I, 53 (1862), wrote further of the collections:—

"Seine erste Sammlung, deren Verzeichniss gedruckt ist, verbrannt 1822 bei einer Feuersbrunst (cf. *Stett. Ent. Zeit.*, 1844, p. 79); eine zweite verkaufte er nach England an Children (jetzt im Britt. Mus.);" and of their '*Enumeratio*': "Nach einem zum Theil eigenthümlichen System, mit Angabe der Familien-Charactere."

We may assume that Billberg's *Enumeratio* was published, and that the estimation of its scientific merit by his "compatriot" Hummel, in 1825, was that generally held at the time. We have also learnt from the above extracts that Billberg's library, and the collection of which his book was the "*Enumeratio*," were destroyed by fire in 1822.

Calling Dr. Günther's attention, in 1892, to Hagen's statement that Billberg's second collection was in the British Museum, he replied as follows:—

"I searched the old Departmental documents, with the object of learning what had become of Billberg's second collection, said by Hagen to have come into the British Museum through Children. Children was Assistant Librarian from 1816—1837, and Keeper of the Zoological Department from 1837—1840. He had a private collection of Insects, and seems to have bought Billberg's specimens, or at least part of them, for his private collection. I have found a (private) memorandum, dated September, 1829, on which a number of *Coleoptera* are enumerated, stated to be missing from Billberg's Museum. From this it is clear that he did not acquire all Billberg's types. When Children resigned in 1840, his collection was sold by auction, and a part of it purchased by the Museum. The specimens thus purchased we can still distinguish by our register-marks. Most probably some of Billberg's types are among them, but as Children stated on his labels only specific names, but not the origin of the specimens, we can recognize Billberg's specimens by circumstantial evidence only, viz., when they bear a Billbergian species on an old Childrenian label. All these remarks refer to *Coleoptera* only; I have no evidence that specimens of any other Order of Insects were transferred from Billberg's Museum to the British Museum, or even to Children's private collection.

I wonder how Hagen got at the history of Billberg's collection." [Dr. A. Günther, *i. l.*, 12. VII. 1892.]

Zetterstedt, *Insecta Lapponica* (1840), employed some of Billberg's genonyms, and he appears to have been the only Lepidopterist who adopted any of them before Scudder; [Historic Sketch of the Generic Names proposed for Butterflies: a contribution to Systematic Nomenclature.—Pr. Am. Ac. Arts and Sc., Boston, X (2 s., II), 91—293. SALEM (1875)].

As it is through Scudder's work that these names have been revived in the *Rhopalocera*, it is necessary that we should endeavour to ascertain on what grounds these genonyms were held to be valid by Scudder.

Staudinger and Rebel, *Cat. Lp. Pal.*, I, 14, No. 14 (1901), following Scudder, give

"LEPTIDIA, Billbg., 1820 (= *Leucophasia*, Steph., 1827)," for **sinapis**, L.

Scudder, *Pr. Am. Ac. Art. Sc.*, Boston, X (2 s., II), 204, No. 612 (1875), records—

"LEPTIDIA. 1820. Billb. *Enum. Ins.*, 76, **sinapis**. Sole species, and therefore type. Never since used, but should certainly be restored. See *Leptoria*" [Wstwd., 1841], "and *Leucophasia*" [Steph., 1827].

Scudder (*l. c.*, 204—5): "LEPTOSIA. 1816. Hübn., *Verz.* 95: **sinapis** (lathyri), Alcesta, **Xiphia** (chlorographa), Brephos. 1858. Kirb., *List Brit. Rhop.*: employs it for **sinapis** (candida, erysimi). 1870. Butl., *Cist. Ent.* i. 39, 54: specifies **sinapis** (lathyri) as type,

but wrongly, as this was already the type of three different genera! See *Leptidia*. *Sinapis* was taken as type of *Leptidia* in 1820, *Brephos* has belonged to *Leucidia* since 1847, *Alcesta* and *Xiphia* are congeneric, and *Xiphia* may be taken as the type. See *Nina* and *Nychitona*."

Scudder (*l. c.*, 205), "*LEUCOPHASIA*. * 1827. Steph., Ill. Brit. Ent. Haust. i. 24: *sinapis*. Sole species, and therefore type, as specified by Westwood (Gen. Syn. 87). Used in the same sense by many subsequent authors. Falls before *Leptidia*. See also *Leptoria*."

Scudder (*l. c.*, 204): "*LEPTORIA*. * 1841. Westw., Brit. Butt. 31: *sinapis* (candida). Sole species, and therefore type. Falls before *Leptidia*. See also *Leucophasia* and *Leptosia*, for the latter of which it was probably a misprint."

Scudder overlooked entirely *Sph.*, Ill. Br. Ent., Haust. IV, 404 (1835): "244 *LEPTORIA* (*Leucophasia*). 1001 ***Sinapis***, 24, 5811" and therefore failed to understand that there was no such genus as "*LEPTORIA*, Wstwd.," that Westwood was quoting from Stephens, who had written †*LEPTORIA* [Hb.], Steph., in error for ‡*LEPTOSIA*, Hb., and that in 1835 Stephens intended to convey the idea that *LEPTOSIA*, Hb. (1818) [†*LEPTORIA* (Hb.), *Sph.*] = *LEUCOPHASIA*, *Sph.* (1827), type, ***sinapis***. Scudder proposes ***Xiphia*** for the type of *Leptosia* in 1875, neglecting to observe that Stephens had made ***sinapis*** the type in 1835. If *LEPTIDIA* be inadmissible this action must be studied by those interested in the *Rhopalocera*.

[N.B.—Scudder quotes Billberg's genus as *LEPTIDIA*, while our transcript gives the name as *LEPTIDEA*. It is obvious that either Scudder or Durrant has wrongly copied this name, but this discrepancy does not affect the argument.]

As few of our readers can have had the opportunity of studying Billberg's *Enumeratio*, *LEPTIDEA* may be taken as a typical example, and *everything* possibly relating to it is reproduced for those interested in the subject, with the object that they may decide for themselves the question of the validity or invalidity of Billberg's names.

"2. Subclassis *ASTEGOPTERA*.

Alis non tectis.

I. Ordo *Lepidoptera* :

Aliis plerumque squamoso-imbricatis ; lingua spirali filiformi, rare nulla.

I. Tribus *Ephemerina* :

Alis quiescentium erectis : antennis extrorsim crassioribus, l. capitatis.

I. Nat. *Papilionides*.

Tibiis posterioribus apice tantum calcaratus : tarsis distincte unguiculatus.

I. *Divis.* Pedibus omnibus, 6 gressorius ;" (Billbg., *l. c.*, 75).

"2. Subdiv. alis inferioribus pro abdomine canalem formantibus ;"

"2. Manip. alis oblongis.

G. LEPTIDEA, Eg.—PONTIA, Fbr., Ltr., &c.

Sinapis. Svec. Linn.

G. ACAPTERA, Eg.—PAPILIO, Dr.

(Typus Papilio crisia)." (Billbg., *l. c.*, 76.)

N.B.—Billbg., *l. c.*, 76.—"I. Manip. Alis subtrigonis" separated "GLYCESTHA Dlm. (MSS.) ;" "CEFORA Dlm. (MSS.) ;" "GANYRA Dlm. (MSS.)" and "GONRPTERA, Eg." (*sic*)—"GONEPTEBYX, Lch. Ed. enc.," &c., for "*Rhemni*" (*sic*) and "*Cleopatra*," from the two genera included in Manip. 2.

[Those who hold inviolable, and established for all time, a name containing an obvious error in orthography are to be congratulated on the acquisition of *GONRPTERA* a more recent acquisition is "*flavib is*." Is this to persist in this form or to be corrected to *flavibasis* ?]

It will doubtless be conceded by all that genonyms and idionyms are absolutely invalid, unless their application is comprehensible. It is a concession to the older writers that we accept a named but undescribed genus if its types are recognisable. The reason for this concession being that in the great proportion of their described genera the generic diagnosis being absolutely useless and unscientific, such genera are to all intents and purposes not described at all, and therefore have no better claim to recognition than genera which were undescribed but illustrated by types. In both cases all we can rely upon is the genonym and the types which elucidate it.

Hübner's Tentamen and Billberg's Enumeratio appear at first sight to require similar treatment—yet the two series of names, absolutely logonymic so far as each work is concerned, are quite dissimilar. The actual species intended by the type of Hübner's Tentamen genera can be at once ascertained from his iconographic works.

[If in any case the figure of a Tentamen type were unpublished at the date of the publication of the Tentamen, such genonym and idionym were mere logonyms until they were elucidated by the figure, and the genus only became completed and valid at the date on which the figure was published.]

It must be granted by all that the Tentamen *intention* is capable of comprehension. Can the same be said of Billberg's Enumeratio ? Can it be argued that the mere citation of "*sinapis*, L.," by Billberg

elucidated *Leptidea*, Billbg. ? Billberg may or may not have correctly identified "*sinapis*, L.," but in any case his type of *Leptidea* was not Linnæus' type of *sinapis*, but the species which was *sinapis* (L.), *teste* Billbg.

How can we know that in Billberg's collection the actual exponent of *rapæ*, L., may not have been "*sinapis*, Ego," and of *sinapis*, L., "*rapæ*, Ego" ? Certainly Hummel does not give us much confidence in accepting Billberg's determinations, and Hummel was in a better position to judge than we can possibly be. It may of course be argued that Billberg could not be mistaken in his identification of *Rhopalocera*, but surely all his genera must stand or fall upon one and the same principle. We cannot accept "BROSIS Eg,—*Tinea* ol. *muscatella*, Svec., Fbr.," as invalidating *Incurvaria*, Hw., one of the types of which is *muscalella*, F., and if his authority cannot be justified in one instance why should it be accepted in another (or others). The mere citation of a type without elucidation must involve a possible fallacy—we cannot therefore assume that doubt does not exist, in which case alone can citation be accepted as valid—*muscatella* (F.), *teste* Billbg., may or may not = *muscalella*, F. How can we decide the point ?

Two examples gathered from Scudder may explain our position. Scdr., Pr. Am. Ac., AS., Boston, X (2 s., II), 170, No. 421 (1875), accepts.

"EULEPIS. 1820. Dalm. in Billb., Enum. Ins. 80 : *Athamas*. Sole species, and therefore type;" the foundation being "EULEPIS, Dlm. (MSS.).—*Nymphidium*, Fbr.—*Lemonias*, Ill.—*Papilio* et *Hesperia*, ol. *Athamas*" [sine loc. Dnt. MS.], "Eg., 36" (Billbg., l. c., 80).

The species and genus were absolutely logonyms (*nomina nuda*) and absolutely incomprehensible, and yet Scudder accepts them from Billberg's Enumeratio ! Scdr. Pr. Am. As. A.S., Boston, X (2 s. II), 104, No. 28 (1875).

"AEROPETES.* Billb., Enum. Ins. 79 : *Licis* (*Licæ*), Tulbaghia. There is a Castnian with the name of the first species, and it is probably the insect meant by Billberg, although the species is Drury's, and not Fabricius's, as stated by the writer. The group as thus constituted, consists of wholly incongruous material, and may be discarded. See Meneris."

This is the introduction of the *personal equation* on the part of Scudder, who does not like this particular Billbergian genus—but the geonym *Aeropetes* is as valid as any other of Billberg's names. According to Scudder (l. c., 216, No. 680) :—

"**MEXERIS**. 1840. [Boisd. in] Doubl., List Br. Mus. 106: **Tulbaghia**. Sole species, and therefore type." limited the possible type of **AEROPETES**, Billbg. to Billberg's first idionym (whatever it may represent).

Billberg, *l. c.*, 79, writes thus:—"AEROPETES Eg—*Brassolis* Fbr.—*Papilio* ol. **Licas**, Surin. Fbr. **Tulbaghia**, Cap. b. sp. Linn."

Licas (F.) teste Billbg. is identified with the Castnian **Licus**, Drury. And yet the citation of *sinapis*, L., is accepted without question!

One further example must be quoted to demonstrate Scudder's wanton acceptance of mere logonyms (*nomina nuda*) as *valid genonyms*.

Sedr. Pr. Am. Ac. A.S., Boston, X (2, s. II), 232, No. 766 (1875):—

"**OGYRIS**. 1847. Doubl., List Br. Mus. 20: **Idmo**, **Abrota**, **Damo** (all inedited). 1852. Westw., Gen. Diurn. Lep. 472: **Abrota**, **Idmo**: the former is figured."

"Since Doubleday's genus was undescribed, and at the time when it was proposed all the species were inedited, the genus can only date from 1852, though it should bear Doubleday's name: at this time the only published species was **Abrota**, and this therefore must be the type. **Idmo** was not published until 1862, and **Damo** is still a MS. name."

Indexing Scudder's record, we obtain the following results:—

OGYRIS, Wstwd.

[= **OGYRIS**, Dbld., *MS.*].

Type, **Ogyris abrota**, Wstwd. (Wstwd., 1852).

OGYRIS [Dbld., List Br. Mus., 20, *LN.*], Wstwd., Gen. Diurn. Lep., 472 (1852).

1 (Type), **abrota** (Dbld., *LN.*), Wstwd.

2. **idmo** (Dbld., *LN.*), Wstwd.

It may be conceded that Doubleday invented all these names, but as he omitted to indicate their signification, they must surely be attributed to Westwood, who adopted Doubleday's invalid logonyms, and made them valid.

[We have accepted Scudder's statement of this generic problem—if there are omitted facts—we are not responsible for such omission.]

One other remark on the nomenclature of the *Rhopalocera*. Scudder, *l. c.*, 238—40, recognises *antiopa*, L., as the type of **PAPILIO**, L. Those who are interested in this question should note an omission from his references—

Wood, Ill. Linn. Gen. Ins., II, 4—6, Pl. 43 (1821), *specifies* and figures **urticae**, L., which anticipated Scudder's citation of *antiopa*, L. (1872).

To return from Scudder and those who accept Billberg's genera to Billberg's "*Enumeratio*," we are compelled to express our opinion

that Billberg's book is no more than what it professes to be, viz.: "Enumeratio Insectorum in Museo Gust. Joh. Billberg," and we have been unable to discover a single genus which can be accepted as valid, all the species are obviously invalid when signed "Eg.," and the remainder are open to doubt. We cannot accept Billberg's Enumeratio as coming within the requirements of our code of rules—and emphasise Hummel's regret that any copy of it escaped the fire of 1822.

(To be continued)

ELLAMPUS TRUNCATUS, DAHLB., CONFIRMED AS BRITISH.

BY THE REV. F. D. MORICE, M.A., F.E.S.

In Ent. Mo. Mag., 1900, p. 107, I mentioned the existence of a specimen of *Ellampus truncatus*, Dhlb., in Walcott's collection, now the property of the Cambridge University Museum. I could then say only that I "hoped" it might safely be treated as an addition to the British list, but I have now definite evidence that *E. truncatus* is really a British insect.

Mr. A. H. Hamm, of Oxford, has sent to me for identification what is undoubtedly a specimen of the same insect. It was taken by Mr. W. Barnes on June 30th, 1901, in a garden at Southern Hill, Reading. The captor said that it appeared to be running in and out of holes in a rose tree trained against the wall of a house, and that he met at the same time with specimens of *Trypoxylon figulus*, Linn., and *clavicerum*, Lep., *Ellampus auratus*, Linn., and *Chrysis cyanea*, Linn. It seems very likely that one of the above two Fossors was the "host," or rather "victim," of the *E. truncatus*, and perhaps also of the *auratus*, which latter, I believe, infests several species of pith-burrowing Fossors. (*C. cyanea* is also said by M. du Buysson to be attached to various species of *Trypoxylon* and *Cemonus*, and I have generally found it about old gate posts inhabited by *Trypoxylon*, *Chelostoma*, *Osmia*, &c., but on one occasion lately I was surprised to meet with it, along with *C. neglecta* and *C. viridula*, haunting the sandy burrows of *Odynerus spinipes*).

I have already (*i.e.*) given the characters by which *E. truncatus* may be distinguished from our other British Chryside; and will therefore only add that the present specimen has been placed in the collection of the Oxford University Museum (Hope Department), and that I am indebted to Mr. Hamm for the details given above respecting its capture.

Woking: July, 1902.

THE CONCEALED VENTRAL SEGMENTS AND GENITAL ARMATURE
OF *ANDRENA FEROX*, SMITH, ♂.

BY THE REV. F. D. MORICE, M.A., F.E.S.

I have long wished, but had almost ceased to hope, for an opportunity of dissecting the above extraordinarily rare bee, in order to compare its "armature," &c., with those of the other species of *Andrena* which I have examined. At last, through the kindness of Mr. A. J. Chitty, such an opportunity has been given me. He has been good enough to let me extract the parts in question from an almost fresh specimen taken by himself near Faversham; and although the result has a little disappointed me, I think it is very desirable to record it.

I had expected something decidedly abnormal in the interior structure of a species whose external characters are so striking and singular. Both the genitalia (stipites and sagittæ) and the 8th ventral segment of the somewhat similar *A. bucephala*, Sm., are highly paradoxical, and I had thought it likely that those of *ferox* would be even more so.

On the contrary, they prove to be particularly simple! They resemble very closely those of *A. rosæ*. The armature is a little broader and rounder as a whole, but the details of its structure are closely analogous in the two species. The 8th ventral segments also are very alike; only in *ferox* the apex is scarcely bifid, while in *rosæ* var. *Trimmerana* it is very strongly so; and though the character is less conspicuous in var. *spinigera* (which, like *ferox*, has a large head, a spined gena, and a rufescent abdomen) it is at least distinctly indicated. The 7th ventral segment in *ferox* again recalls that of *rosæ*; the "teeth" at its apex, however, seem rather more parallel and separated by a wider notch, but the difference is so slight that (with only one specimen of *ferox* before me) I should hesitate to lay much stress upon it.

Another large headed (non-British) species much resembles *ferox* in the points of structure mentioned above; this is *megacephala*, Smith, a species whose male has a strong external similarity to *bucephala*, agreeing with it, and differing from *ferox*, in having the genæ simple.

If I am right in thinking that the characters of the armature and the concealed ventral segments in *Andrena* species ought to be seriously considered in attempting to arrange the latter in groups, it would seem that *ferox*, *megacephala*, and *rosæ* (together with various forms which continental authors generally separate from the latter,

but which Mr. Saunders treats as mere varieties of it, *spinigera*, *eximia*, *austriaca*, &c.) should be regarded as very near relations, while *bucephala*, being utterly unlike any of them, both in its armature and its 8th ventral segment, can hardly be admitted to a place in the same group. But I quite feel that the special attention I have given to these characters, and the interest I have come to take in them, may make me exaggerate their importance.

As to the fact, however, that in these points *ferox* closely resembles *rosæ*, &c., and does not in the least resemble *bucephala*, there can be no doubt whatever, and I therefore put the fact on record, be its interpretation what it may.

Woking: July, 1902.

A REMARKABLE INSTANCE OF DELIBERATION OBSERVED IN AN AMERICAN ANT.

BY C. R. OSTEN SACKEN, PH.D., HON. F.E.S.

It was in Albany, N. Y., more than forty years ago, that I found myself confined during a rainy day in a small hotel room with white-washed walls. I soon noticed a small brown ant walking upon the wall, and it occurred to me to follow its path by drawing it with a lead pencil. The line thus drawn by me ran upwards for a certain distance, and then, in a broad curve, turned towards the right. The next morning I saw an ant of the same kind follow the same path; as I had some ether with me I put a small drop of it upon the pencil-line which I had traced the day before, but at a considerable distance in advance of the approaching ant; as soon as the ant smelt the ether it abandoned the path, *turned to the left*, and changed its mode of progress. Instead of going straight ahead, it now moved in zig-zags, making gradually *longer* those branches of the zig-zags which were directed *towards the right*. By adopting this course the ant again met, by and by, the line I had traced; it recognised immediately what seems to have been the highway for ants travelling on that wall, and followed it to the end.

It is evident that in this instance the ant, in recognising its road, was guided neither by its eyesight, nor by its sense of touch, but by the sense of smell, or some sense akin to it. But the resolute action of the ant in quitting a path which it could no more follow, and retrieving it afterwards, at another place, by a different and well considered course of progress, offers, it seems to me, a remarkable instance of the power of deliberation in an insect. It is probable *that most ants*, in a certain degree, possess this power.

Not being a specialist in myrmecology, I am not able to give the scientific name of the ants which I saw, nor to appreciate the degree of importance which specialists in that family may attach to my observation.

8, Bunsen Street, Heidelberg,
Germany : June, 1902.

ON *NYXEOPHILUS CORSICUS*, MARSH., AN ADDITION TO OUR
FAUNA, WITH A DESCRIPTION OF THE MALE.

BY CLAUDE MORLEY, F.E.S., &c.

Two male and two female specimens of a species of *Ichneumonidae* in my collection I had referred to the genus *Nyxeophilus*, Först., with a doubtful reference to *Xylonomus rusticus*, Desv., before the publication of the Rev. T. A. Marshall's paper on the above species in this Magazine for last December. Since that time Mr. Bignell has kindly allowed me to examine the type of *N. corsicus* in his collection, and the above specimens, all of which were taken in the New Forest, probably at Lyndhurst, by Miss Chawner and Mr. Fred. C. Adams, between May 18th and 31st, are identical therewith; Mr. Adams has just sent me another female from the same locality, taken in early June. They differ in no way from the typical example, excepting only that the wings are somewhat less deeply tinged with glaucous colouring.

Xylonomus rusticus, Desv., I find, upon reference to the National Collection, to be quite a distinct insect; there are, nevertheless, seven specimens of *N. corsicus* in the British Museum, two females (labelled "*reluctator*") and one male "ex col. Ste.;" and two female and two male "ex col. Desv.," all under the name of *Echthrus reluctator*, Linn.

The ♂, which appears to be undescribed, differs little from the ♀, excepting in the conformation of the front legs. The antennæ are slightly stouter and are longer than those of the ♀, being 12 mm. in length. The mesonotum is more nitidulous with its notauli deeper. The abdomen is linear, ventrally plicate throughout, and apically subcompressed (resembling, except the basal segment, that of *Linoceras macrobatus*, Tasch.); the basal segment is narrower, more distinctly petiolar and equilateral than that of the ♀. All the legs, more especially the tarsi, are longer; the front legs are nearly simple and extend to the areolet of the wing, they are piceous, with the femora except their apices, the trochanters and coxæ, black; the front tibiæ are only very slightly and gradually inflated towards their apices; and the first tarsal joint is strongly excised basally beneath.

Length, 17 mm.

Both sexes have the metathoracic spiracles elongate-oval and not

subcircular or ovate as in *Echthrus*. Mr. Marshall's "areola supero-media" is the "area basalis" of Thomson's Opusc. Ent., the postero-media being the latter's areola, *beyond* which is the slightly reflexed transverse carina. The gastrocœli are very small but distinctly oblique. There is a distinct transverse constriction at the base of the tibial intumescence in both sexes, and the intermediate femora of the female are canaliculate above and below. The spiracles of the first segment, as I understand them, are within the lateral projections, which in the type and my own examples are placed just *before* the middle, but are more conspicuous in the male. Mr. Marshall appears to have been misled by a fossette situated on either side in the disco-lateral border *behind* the middle; under the microscope these truly appear to contain spiracles, but, having met with no analogous formation and no trace of such a depression occurring in my examples, I am led to regard them as accidental in the type specimen.

There can, I think, be no doubt that this species is correctly ascribed to *Nyxeophilus*. Ashmead, whose generic character regarding the metathoracic costæ should be omitted, followed by Mr. Marshall, has placed this genus among the PIMPLINÆ. To me this appears a less natural position than among the CRYPTINÆ, for in all the typical genera of the former group, *e. g.*, *Xorides*, *Xylonomus*, *Ischnoceros*, &c., the mesosternum is entire, with no external sulcus. In *Nyxeophilus* and *Echthrus*, however, this sulcus, especially in the case of the former, is very deep and determinate, with, be it noted, an exactly pentagonal areolet.

We have therefore to choose which of two sets of characters is the more important: *Nyxeophilus* has the head tumidulous, quadrate; the labrum free (as indeed it is to a great extent in many Cryptids, *e. g.*, *C. obscurus*, Gr.); the notauli deep; mesonotum not sloping anteriorly and centrally depressed; metanotum subexareolated, with but an apical costa; the first abdominal segment is not conspicuously dilated centrally (much less so than in *Ischnoceros*): and, above all, its spiracles are placed slightly before the middle—all which points relate it with the *Xoridini*. On the other hand, the elongate and (at apex) gradually attenuated antennæ, which bear in both sexes a broad pale band, consisting of six joints, placed not distinctly beyond the centre; subpetiolate abdomen (especially in ♂); the intumescence of the front tibiæ, which very remarkably resembles that of *Echthrus lancifer*, Gr., and is approached by *Hygrocryptus carnifex*, Gr., and *signatorius*, Fab. (having the spiracles of the first segment placed in

and not beyond the middle) as well as by *Xylonomus*, ♀ ♀; and above all the pentagonal areolet and distinctly sulcate sterna—are typical Cryptid characters.

There can be no doubt that this genus, wherever placed, must be kept in close proximity with *Echthrus* (*Macrocryptus*), which Professor Thomson has mingled with the CRYPTINÆ, wherein *Nyxeophilus* appears most naturally under his "c c c." Head tumidous, cheeks buccate, vertex quadrate, clypeus bisinuate; ♀, front tibiæ inflated and basally constricted. These two genera may, as far as I am aware, be very simply separated thus:—

Sulcus reaching base of mesosternum; metanotum with apical costa only...

NYXEOPHILUS, Först.

Sulcus not reaching base of mesosternum; metanotum with basal costa only...

ECHTHRUS, Grav.

Ipswich: June, 1902.

THREE NEW LEPIDOPTERA FROM ADEN.

BY E. MEYRICK, B.A., F.Z.S.

The three following apparently undescribed species were included in a collection of *Lepidoptera* made at Aden by Mr. F. Muir, and submitted to me for identification by Dr. Sharp. The types are deposited in the University Museum of Zoology at Cambridge.

PLUSIADÆ.

ACONTIA GEPHYRIAS, *n. sp.*

♀. 32 mm. Head white, sides of forehead ferruginous. Palpi white, terminal joint and apex of second suffused with ferruginous. Thorax white, partially suffused with yellow. Abdomen white, base of segments orange. Fore-wings rather elongate, triangular, termen rather obliquely rounded, slightly waved; light yellow, becoming deeper yellow in disc; a thick dark ferruginous-fusca longitudinal streak, mixed with whitish, extending from base through middle of disc, posteriorly suffusedly dilated and curved upwards to termen above middle, cut in this portion by two yellow streaks on veins; a small ferruginous subcostal spot before three-fourths; a black costal dot close before apex: cilia dark fuscous mixed with whitish, basal line dark ferruginous. Hind-wings prismatic-white, towards apex tinged with brassy-yellowish: cilia white, base yellowish.

One specimen.

GRAMMODES SCHEMATICA, *n. sp.*

♀. 34 mm. Head ochreous-whitish. Palpi ochreous-whitish, lower half of second joint fuscous. Thorax whitish-ochreous, sides mixed with dark fuscous. Abdomen ochreous-whitish, base of segments more ochreous. Middle tibiæ apparently with only one spine. Fore-wings triangular, termen rather obliquely

rounded, waved; rather dark fuscous; basal area mixed with whitish; a moderately broad curved white fascia from two-fifths of costa to middle of dorsum, darker edged; a similar rather irregularly triangular blotch on middle of costa reaching half across wing, including a dark fuscous costal dot; a white costal spot near before apex; a grey-whitish irroration towards termen; a terminal series of blackish lunate dots: cilia fuscous, at apex and on lower half of termen white on outer half. Hind-wings with termen waved, obtusely angulated in middle; dark fuscous; basal half white except on median and subdorsal veins; a rather narrow white terminal streak from apex to three-fourths of termen, interrupted by a moderate round blackish spot on angulation, beneath which is a cloudy blackish connected dot: cilia white, on angulation and tornus fuscous.

One specimen.

CRAMBIDÆ.

ARGYRIA HOLOCROSSA, *n. sp.*

♂. 19 mm. Head and thorax prismatic-fuscous. Fore-wings elongate, narrow, posteriorly dilated, apex obtuse, termen rather obliquely bowed; prismatic-whitish, irrorated with fuscous and dark fuscous; first line obscurely indicated by darker margins; indistinct darker spots beyond first line below middle, and beneath costa beyond middle; a broad terminal band of darker suffusion, more ochreous on termen, enclosing angulated second line, which is obscurely indicated by darker anterior margin, violet-tinged on upper half, and a subterminal violet-blue metallic line: cilia fuscous, with a darker basal line. Hind-wings prismatic-whitish; a dark coppery-fuscous rather broad terminal fascia, narrowed to a point at tornus: cilia whitish, with a fuscous basal line.

One specimen.

Marlborough: July, 1902.

PSOCIDÆ FROM THE DISTRICT OF THE LAC DE JOUX (SWISS JURA).

BY ROBERT McLACHLAN, F.R.S., &c.

In this Magazine (2), vol. x, February and March, 1899, I gave an account of my experiences in this district, with a list of the "*Neuroptera*" taken in July and August, 1898. When writing on the *Psocidæ* I said (p. 64) that "it had never been my lot to visit a district in which these insects were so poorly represented," and then enumerated five species, all, with one exception, limited to one or two examples of each. But in August, 1901, the Rev. A. E. Eaton visited the same district, going over part of the same ground, avoiding Le Pont, on the Lac de Joux, which I made my head-quarters, and, taking advantage of the extension of the railway since my visit, pushing on to Le Brassus, higher up the Orbe Valley (or Jouxthal), a small town close to the French frontier. His experiences and my

own do not coincide, showing how dangerous it is to generalize on the capabilities of any district from one flying visit. The discrepancy may probably be accounted for in more than one direction. July and the beginning of August are too early for *Psocidæ* generally; the season of 1901 may have been damper (these insects like a certain amount of moisture, as favouring the growth of the minute fungi on which they principally feed); and, finally, the localities were not in all respects identical. Mr. Eaton brought from the district precisely double the number of species that I found, in at least 35 specimens, and it is fair to assume that he made no very special search for them.

The species he found are as follows:—

- PSOCUS* (AMPHIGEBONTIA) BIFASCIATUS, Ltr. (1), Brassus, August 16th.
PS. NEBULOSUS, Steph. (4), Vallorbe, August 13th, and Brassus, August 17th.
PS. LONGICORNIS, L. (6), "Source de l'Orbe," August 13th.
PS. SEXPUNCTATUS, L. (4), Cascade du Day, August 12th, and Brassus, August 17th.
STENOPOCUS IMMACULATUS, Steph. (1), "Source de l'Orbe," August 13th.
ELIPSOOCUS (MESOPOCUS) UNIPUNCTATUS, Müll. (1), Brassus, August 17th.
E. HYALINUS, Steph. (1), Brassus, August 16th.
E. (PHILOTARSUS) FLAVICEPS, Steph. (many), Brassus, August 16th and 17th.
CÆCILIUS BURMEISTERI, Brauer (2), "Source de l'Orbe," August 13th.
C. PERLATUS, Kolbe (1), Brassus, August 17th.

Of the foregoing only *Ps. longicornis* and *M. unipunctatus* were found by me; *Ps. fasciatus*, *St. cruciatus*, and *E. abietis* were found by me and not by Mr. Eaton. It may be taken for granted that many more species will be discovered in the district when it is systematically worked.

A Swiss entomologist, Herr Eric Mory, of Basel, visited the district in August, 1898. He made important captures in *Odonata*, but does not appear to have found any *Psocidæ* (cf. Mitth. schw. Entomol. Gesellschaft, x, pp. 187—197).

Lewisham, London:

June 22nd, 1902.

Coleoptera caught in Ireland during May and June, 1902.—On May 19th I visited Greystones, near Bray, but did not secure many beetles worth mentioning: *Chrysomela Banksi* was common under stones, and a short series of *Barypeithes sulcifrons* and a single specimen of *Barynotus Schönheri* were obtained by sweeping.

On the advice of Mr. J. N. Halbert, to whom I am much indebted for his kindness in showing me the best localities, I worked the North Bull, a sand bank near Dollymount, where I succeeded in capturing several nice species; *Ædus marinus* occurred in abundance under the stones of the breakwater, and with them

two specimens of *Diglossa mersa* were found. Under seaweed *Phytosus balticus*, *Oxytelus maritimus*, and *Caesus xantholoma* were plentiful, with several *Saprinus maritimus* and *Aleochara grisea* and *obscura*. *Telephorus Darwinianus* was also found here under a stone. *Cercyon littorale*, var. *binotatum*, was fairly plentiful under seaweed and decaying vegetables.

On June 3rd a single specimen of *Hemania appendiculata* was secured after several hours' hard work in the Royal Canal; *Gyrinus marinus* and *opacus*, *Deronectes assimilis*, and *Hydroporus pictus* occurred in the canal, and *Donacia discolor* was plentiful on the rushes, all the forms except the bright blue being found.

A visit to Baldoyle resulted in a series of *Cillenus lateralis* and a single specimen of *Polydrusus chrysomela*. *Brosicus cephalotes* was abundant here, and *Dichirotrichus pubescens* was in some numbers.

Hydroporus rivalis swarmed in Gleucullen Valley, and *H. obscurus*, *tristis*, *morio*, and *Gyllenhalii* were taken from the bog-pools on Mt. Kippure.

At Portmarnock *Otiorrhynchus auro-punctatus* was abundant, but difficult to bring back in good condition, *Bembidium æneum* was fairly common, and *Apion æneum*, *rufirostre*, and *radiolus* were swept from mallow.

Silpha atrata, var. *subrotundata*, and *Tachyporus obtusus*, var. *nitidiusculus*, were found in several places near Dublin.

On June 17th I went for three days to Lough Neagh, and had fairly good sport, in spite of the miserable weather. I visited the south-east corner of the lake, and my captures included nice series of *Pelophilus borealis*, *Chlaenius nigricornis*, and *Cælambus quinque-lineatus*, two specimens each of *Carabus clathratus*, *Silpha dispar*, and *Rhopalomesites Tardii*, six *Bembidium argenteolum* (the species discovered by Mr. J. N. Halbert), *B. bipunctatum*, *Blethisa multipunctata*, *Nebria Gyllenhalii*, *Oreochilus villosus*, *Hylobius abietis*, *Staphylinus pubescens* and *casareus*, and *Cryptohypnus riparius*.

Deronectes assimilis was abundant here with *Hydroporus lepidus*, *lineatus*, *litturatus*, *planus*, &c., and one specimen of *Cælambus novemlineatus* was found. Dark forms of *Pterostichus cupreus* were plentiful.

Of the rare water-bug, *Aphelocheirus astivalis*, only a dead and broken specimen could be found.—STANLEY W. KEMP, 80, Oxford Gardens, Notting Hill, W.: July, 1902.

Ceuthorrhynchidius Dawsoni, Bris., in the Isle of Man.—After detailing localities for this species in "The Coleoptera of the British Islands," Canon Fowler remarks that "it is probably much more widely distributed than is at present known, if we may judge from the Scotch record [Solway district (Sharp)]." At the end of June and beginning of July of the present year I met with this species in some numbers by shaking plants of *Plantago maritima* over a sweeping net on the cliffs at Perwick Bay and at Traie Veg, Port Erin. The species seemed to be entirely confined to this plant, although *Plantago coronopus* was plentiful in both localities. In the Annual Report for Session 1901 of the Lancashire and Cheshire Entomological Society I notice that amongst the exhibits of Coleoptera Dr. Chaster, of Southport, showed this species as being new to the list for the Liverpool district.—J. HAROLD BAILEY, Port Erin: July 3rd, 1902.

Leptinus testaceus, &c., near Bradfield, *Gnorimus nobilis* near Towcester, and *Meloë brevicollis* from South Devon.—Perhaps the following beetles are of sufficient rarity to be worth recording. I have taken them myself during the last two years in this neighbourhood.

Leptinus testaceus, Müll., five specimens in December, 1900, and two in March, 1902, in nests of the wood mouse; *Liodes orbicularis*, Herbst; *Necrophorus inter-ruptus*, Steph.; *Bythinus securiger*, Reich.; *Saprinus virescens*, Payk., the last by sweeping watercress; *Cryptarcha strigata*, F., at a Cossus infected tree; *Phytæcia cylindrica*, L.; *Cryptocephalus bipunctatus*, L., *C. coryli*, L., several by beating whitethorn in June; *Malthodes atomus*, Thoms.; *Lytta vesicatoria*, L., one specimen on a gate post.

I also had sent to me last June from near Towcester two fine specimens of *Gnorimus nobilis*, L., taken from dead roses.

This April I took one specimen of *Meloë brevicollis*, Panz., on the top of the cliff, Bolt Tail, in South Devon; a most careful search in the neighbourhood revealed no more.—NORMAN H. JOY, Bradfield, near Reading: June 16th, 1902.

Coleoptera at Rannoch.—An academic holiday of three days enabled me to spend the week end at Rannoch, from June 27th to 29th, and as I was lucky enough to pitch upon one of our rare spells of true summer weather, I captured several species not seen during my visit of 1900 (see Ent. Record, vol. xii, p. 288).

In the Black Wood *Cetonia floricola*, Hbst., was so common on a Cossus tree, and so busily engaged sucking at the exuding sap, that one sweep of my hand knocked about twenty into my net; as the sun was shining brightly at the time upon the glistening mass of beetles the sight was a striking one, not the thing one expects to see in a dark northern fir wood. After much wandering to and fro I came across a couple of woodcutters busy felling Scotch firs; the fresh turpentine-covered stumps were very attractive to beetles, from the cracks of the bark *Asemum striatum*, L., was freely taken, *Rhagium indagator*, L., and *Clerus formicarius*, L., were common running to and fro on the prostrate trunks, while *Corymbites impressus*, F., and *Pytho depressus*, L., occurred sparingly on the stumps.

I beat the tops of all these felled trees, but only one turned out at all satisfactory; from this came *Pogonocherus fasciculatus*, De G., *Rhinomacer attelaboides*, F., *Pityophorus pubescens*, Marsh. (the last two in plenty), *Elatér nigrinus*, Hbst., *Salpingus castaneus*, Pz., &c. Sweeping was not very productive, the best insects being *Halysia 16-guttata*, L., *Telephorus paludosus*, Fall., *Tropiphorus mercurialis*, F., *Polydrusus undatus*, F., *Luperus flavipes*, L., and *Hydrothassa aucta*, F.

My visit was too hurried a one to allow time to work the moss or fallen logs, and I was too late for *Astynomus ædilis*; the woodmen told me this beetle, so well known to them, had been excessively scarce this season, probably due to the bitterly cold and inclement weather which prevailed all through Scotland till past Midsummer day. While cycling over from Struan station I obtained a fine specimen of *Ancistronecha abdominalis*, F., resting on a pine fence a mile or two from the station.—T. HUDSON BRABE, 10, Regent Terrace, Edinburgh: July 9th, 1902.

Coleoptera, &c., at Greenhithe and Charing, Kent.—A couple of days' collecting at the end of May in the Greenhithe district (which is mainly one of orchards,

plantations, and hop-gardens, intersected by apparently interminable lanes) produced, amongst commoner species, single specimens of *Bembidium 5-striatum* and *Amara consularis*, the former running on a path, the latter under a stone; a good series of *Bembidium doris* at the sides of a pond, and plenty of *Aphthona venustula*, and a few *Psylliodes dulcamaræ* by sweeping their respective food-plants. I also got a number of *Liparus coronatus* by searching *Anthriscus sylvestris*, on which it lives; they were buried in the soft earth at the roots of the plants, two or three to each root. A welcome capture was a specimen of *Otiorrhynchus raucus*, swept from a mass of *Lamium album* at the side of a field. Amongst a number of *Phyllobius oblongus* I was interested to find an individual with the left deciduous mandible remaining; this is broader, and at the same time more sharply pointed at apex than those of the specimen of *Trachyphloeus myrmecophilus*, which I exhibited at a meeting of the Entomological Society in October last, and is armed with a distinct tooth on the inner side near base. It is known that these appendages differ in shape, length, &c., in the various genera which possess them, and I think that British Coleopterists might well keep a look out for specimens retaining them, so that these variations might be noted. At any rate, these deciduous mandibles represent a portion of the life-history of the species, and specimens in which one or both are intact should have an additional value, from that point of view, to any one fortunate enough to come across them.

Amongst the *Heteroptera*, the handsome Lygæids, *Aphanus Rolandri* and *A. pedestris*, were not uncommon under refuse and running in the lanes, and I also swept three specimens of *Eysarcoris melanocephalus* from umbels.

At the end of June I had the pleasure of a day's collecting with Mr. A. J. Chitty on the chalk hills above the village of Charing. The weather was warm and sunny, and there having been rain the previous evening insects were about in some numbers. *Amara patricia* and *Panagæus quadripustulatus* turned up singly under stones, and a pair of *Rhinoncus denticollis* close to a small *Erodium* plant. *Tychius Schneideri* was not uncommon on *Anthyllis*, and a few of another species, apparently *T. tomentosus*, occurred about the roots of various small plants, in which situations also the sluggish and inconspicuous *Trachyphloeus alternans* and *T. squamulatus* were not rare. From some stunted hazel bushes we were delighted to get a series each of *Cryptocephalus lineola*, a really beautiful insect as it sits on the leaves in the sunshine. In some woods a short distance away I was glad to meet with *Apoderus coryli* for the first time; it was by no means common, and in Mr. Chitty's experience has always been a scarce insect in his neighbourhood. I noticed one individual on chestnut; this may have been accidental, but in view of the recent records of *Attelabus* having taken to this tree I have thought it just worth mentioning.—F. B. JENNINGS, 15, Silver Street, Upper Edmonton, N.: *July 12th*, 1902.

Coleoptera in Miller's Dale.—I have recently taken a good series of the following *Coleoptera* in Miller's Dale, in my district: *Ancistronycha abdominalis*, *Podabrus alpinus*, and *Phyllobius viridicollis*. Should these be desiderata to any of our brother Coleopterists I shall be glad to distribute them as far as my duplicates will allow.—J. KIDSON TAYLOR, 2, South Terrace, South Avenue, Suxton: *July 10th*, 1902.

Osphya bipunctata, Fabr., in East Gloucestershire.—On the 31st May and two following days I obtained here several examples of this species; of these twenty-four per cent. were large males, that is, males with enormously thickened hind femora, sixty-six per cent were small males with the hind legs normal, and ten per cent. were females. The large males bore a very close resemblance, both in gait and appearance, to *Telephorus pellucidus*, which occurred with them very commonly. I did not recognise in the field the first small male that I got, but bottled it under the impression that it was an unusually bulky example of *Grammoptera ruficornis*; which latter, however, occurred then but rarely. The males were confined to two non-contiguous whitethorn bushes, whilst one female came off holly, and the other from oak; the whitethorn was not actually in bloom until a week later. I had no reason to believe that these insects clung to their shelter-plant with any especial tenacity, as stated by Curtis and later writers; the former was evidently much impressed by the peculiar development of the hind legs in the large males, and he appears to have considered that the alleged tenacity was to be accounted for by their abnormal structure; my own observations, however, did not furnish anything tending to confirm this view. When the knee of the hind leg in these large males is flexed, and the inner edge of the hind tibia brought close to the femur, the spine-like process at the apex of the tibia fits into a cavity in the trochanter and locks the limb in that position, which is one distinctly favourable to the gripping of some object of very small size, but scarcely for holding "very fast to a leaf or branch," as suggested by Curtis. A similar structure is found in the males of *Cedemera nobilis* and *Oncomera femorata*, and its function, which is doubtless the same in all three species, would appear to be connected with sexual intercourse. I am inclined to this view by the fact that I have not found any of the species mentioned abnormally difficult to dislodge, and moreover, in *Elmis* and its allies, where the faculty of clinging is obviously intensified, that end is obtained by the greater development of the claw-joint of the tarsus. The males of *Osphya* are well-known to vary much in size; my smallest example is but 5 mm. long, whilst my largest has a length of 14 mm., and is stoutly built in proportion.—J. EDWARDS, Colesborne, Cheltenham: 17th June, 1902.

On the pairing of Homalota liturata, Steph.—Amongst an immense number of small beetles which I shook from a living *Polyporus* in a wood here on June 24th last year, was something that attracted my attention by reason that it was twice as large as the others, and had a large extent of upturned abdomen. On close examination in a glass-covered box this proved to be two small Staphs with the extremities of their abdomina in contact, and both moving very rapidly forward in the same vertical plane, but neither of them wholly superimposed. The hinder one had the front part of its head closely applied to the base of the hind legs of the one in front and its abdomen curved over its back to the fullest extent to meet the tip of the abdomen of the other. The venter of the abdomen of the front one was in contact with the upper surface of the hinder one as far as the apex of the elytra of the latter. The movements of the conjoined insects were so rapid that I could not determine the relative position of the sexes, nor whether their position was maintained by reason of the operation of the hind legs of the front one or the jaws of the hinder one, or both of those means.—ID.

The Porcupine Louse.—Mr. Emerson Atkins has brought me specimens of *Trichodectes setosus*, Giebel, found on a porcupine (*Erethizon epixanthus*, Brandt.) shot at Las Vegas, New Mexico. I believe this is the first Mallophagan to be recorded from New Mexico (though of course they are actually numerous), and it seems that *T. setosus* has not been recorded from this species of porcupine.—T. D. A. COCKERELL, East Las Vegas, New Mexico, U. S. A. : June, 1902.

Atomoscelis pilosulus, Uhler, in Arizona.—This Capsid bug (kindly determined by Mr. O. Heidemann) was observed by me at the end of March on leaves of *Atriplex* at Tempe, Arizona. The *Atriplex* leaves are greyish-green, with a peculiar lustre, all of which is imitated by the bug to perfection.—ID.

Strachia oleracea, Linn., in East Kent.—I swept a single specimen of this fine bug on the afternoon of June 29th, after a shower of rain. It was in a bed of mixed nettles and thistles, growing in what was the garden of a now disused cottage about a quarter of a mile from here.—A. J. CHITTY, Huntingfield, Faversham : July 2nd, 1902.

Newspaper Entomology.—When we read the ludicrous remarks on insects occasionally appearing in English newspapers we need not be surprised at similar remarks appearing in those of the Colonies, where entomology is not much studied, and entomological literature is not easily accessible. The attached clipping is from the "Southland Times," N.Z., and seems to me worth reprinting in an entomological journal.

"A moth of unusual size for this part of New Zealand has been sent to us by a Thornbury resident, who captured it there last Saturday. The wings, extended, measure nearly five inches from tip to tip, and the body is about an inch and a half long. J. C. Westwood, F.L.S., in his introduction to the "Modern Classification of Insects," plainly indicates the species as belonging to the family of the *Cicadidae* in the order *Homoptera*. This is the largest insect of the order, one species measuring between six and seven inches in the expanse of its wings. The head is shortly described as short, broad, and transverse, with large prominent eyes; posterior slightly spined without terminal spur; wings completely membranous and delicately transparent; body convex; four wings."

The insect referred to is a magnificent specimen of *Sphinx convolvuli*, fortunately secured by, and now in the collection of, Mr. G. W. Howes, F.E.S., of Invercargill, N.Z. Coming nearer home, the "Ashburton Guardian" lately announced that a settler at Omihi informed the correspondent of the "Oamaru Mail" the other day that his turnip crops had suffered badly this season from the grubs of humble bees. The "grubs" committing the ravages in his turnip crops were those of *Melanchra (Mamestra) mutans* and *M. composita*, both of whose almost omnivorous larvæ attacks the roots of almost every farm crop. Both these species have been extremely abundant this season.—W. W. SMITH, Ashburton, N.Z. : May 19th, 1902.

Andrena ferox, Smith, other Aculeata Hymenoptera, and *Stylops melitta*, Kirby, in East Kent.—This Whitsuntide I had the good fortune to take close by here :

pair of *Andrena ferox*, Smith. The ♀ was caught on May 22nd, flying along the bottom of a hedge. The ♂ was found on May 24th, attached to a stem of grass about a yard from the place where I caught the female, and was lifeless, apparently it had just expired, it is much larger and more strongly coloured than the ♂ taken by me at Dodington in 1896. The locality is quite three miles off Dodington locality, so that as *ferox* has also been taken at Wychling beyond, it is evident that the bee is spread over this part of the country. I saw no signs of any other specimens either then or a fortnight later, when I had the assistance of The Rev. F. D. Morice, but on the later occasion the weather was execrable. I suggest that the male has a very short life. The ♀, however, is rather an insignificant bee, with thin pubescence on the abdomen, and though particularly on the look-out for *ferox*, I was unaware that I had taken the ♀ as well as the ♂ until later, when it was identified, with Mr. Morice's assistance. The wide membrane of the mandibles is not very easily seen, but the mandibles are peculiarly thickened. Mr. Morice kindly dissected out the genitalia of the ♂, and no doubt will describe them. The place where it was captured is peculiarly suitable for bees. A field, thinly covered with poor grass, slopes very suddenly towards the E. S. E. forming one side of a deep valley, through the centre of which runs a road, the hedge mentioned by me is at the bottom of the slope, and a hop field lies between it and the road. The slope and hedge get the full morning sun, and the slope is literally covered with the burrows of *Halicti*, *Andrenæ*, *Eucera*, &c. At a gap in this hedge I was fortunate enough to take on May 21st, at about 10 a.m., a fine ♂ *Stylops melittæ*, Kirby, the first I have seen alive, though I have searched for it every spring since 1894. As early as March this year I found a bee which had evidently just been left by a male *Stylops*; so the *Stylops* occur during a considerable period of the spring.

I was surprised to find what a very conspicuous insect it is; my specimen rose and fell up and down the hedge, its wings never ceasing to vibrate until it was bottled. A ♂ *Andrena Wilkella*, Kirby, found dead with a very large *Stylops* hole in it shortly afterwards was probably the host.

I may perhaps mention the following captures: *Andrena chrysosceles*, Kirby, four ♂♂ on May 17th, on daisies growing on a grass path at the edge of a wood. Two of these were badly *Stylopised*, and in these the clypeus was almost entirely without its usual conspicuous white colour. There were no ♀s about. The ♂♂ kept entirely to the daisies. I could have taken several more specimens had I been minded to do so.

Andrena humilis, Imhoff.—A pair taken on May 21st and 22nd at the *ferox* locality. I have never seen this before here, and was surprised to come across it. The ♂ of the allied *A. labialis*, Kirby, also occurred, and I saw it the following week abundantly at Pamber, Hants. I have never been able to find the ♀ of this species.

Andrena proxima, Kirby, ♂♂ fairly common, May 24th and 25th, also at the hedge, also *Odynerus melanocephalus*, Gmel., a ♂ on May 22nd, and *trimarginatus*, Zett., a ♂ on June 6th. I also took a *Vespa rufa* ♀, the first I have seen in this part of the country. The cold spring has had a curious effect upon the times of the appearance of the bees this year, and quite fresh specimens of the usual early spring bees were to be taken at the very end of May.—ARTHUR J. CHITTY, Huntingfield, Faversham, Kent: June 20th, 1902.

Sphecodes rubicundus, v. Hag., near Ripley and Chobham.—Since this species was proved by Messrs. Sladen and Saunders to be a British insect, it has been recorded from several districts, but, I believe, not as yet from this neighbourhood. I am glad, therefore, to record that in June this year I have found specimens of it at Effingham near Ripley, and in two places in the Chobham district. All these were females, but they are well characterized and unmistakeable examples of the species. One of the Chobham specimens was seen by me to visit a burrow of *Andrena labialis*, and the same *Andrena* was common on the bank where I took the Effingham specimen. About the *labialis* burrows at Chobham I noticed other specimens of *Sphecodes*, ♀, evidently "on the prowl." These, however, were not *rubicundus*. Of two which I caught and examined, one was *gibbus*, the other *pilifrons*. I mention these facts, as everything bearing on the relations of *Sphecodes* and *Andrena* seems at present worth recording.—F. D. MORICE, Woking: July, 1902.

Pachyprotasis antennata: a correction.—In my note last month (p. 158) on *Pachyprotasis antennata* a line was unluckily omitted by the printer. In the 8th line; after the word "green," the sentence should proceed "and the markings of the body are all likewise distinctly green, though paler. In fact," &c. Unfortunately I did not see the proofs, as the publication of the number had to be hastened for special reasons, so that the omission passed unnoticed.—ID.

Nemeobius Lucina in Glamorganshire.—You may be interested to know that last month I took *N. Lucina* at Taff's Well, Glamorganshire. I do not think this butterfly is recorded for South Wales in Mr. Barrett's book.—J. E. CAMPBELL-TAYLOR, 21, Montgomery Street, Roath Park, Cardiff: July 15th, 1902.

Acosmetia caliginosa in the Hebrides.—In the "Entomologist" for November last (vol. xxxiv, p. 305) is a short notice of insects captured at the Isle of Lewis, Hebrides, by Mr. McArthur in the year 1901. This list includes "*Acosmetia caliginosa*." In view of the extreme localization of this species, as at present known, in these Islands—the only recognised localities for it being in Hants and Dorset—this capture seemed to be of special interest. Further enquiries have been most kindly made for me by the Editor, Mr. South, who believes the identification to be correct; and as a result Mr. McArthur has sent me a post card as follows:—"*Acosmetia caliginosa*, one specimen taken between Stornoway and Eye; I believe it went into the collection of Mr. Vivian, but am not quite sure. I have no doubt as to the species. One meets at times with odd examples where least expected." I understand this last remark to be of *general* application, and not to refer to the present species. There is, I think, no record of its capture here, except in the very restricted localities already mentioned.

My object in the present note is to point out the *possibility* of a sporadic migration of this species, of which further evidence is most desirable; and on the other hand to the possibility of its having a habitation somewhere in this far western district, which also, if substantiated, would be of extraordinary interest.

It is rather an inconspicuous species, and might perhaps be passed over as a common *Caradrina* if some attention were not called to it.—CHAS. G. BARRETT, Tremont, Peckham Rye: July 7th, 1902.

On the larval case and habits of Phacopteryx brevipennis, Curt.—So far this insect remains one of the rarest of the British *Trichoptera*, not more than nine or ten native specimens having been recorded. And yet one cannot help thinking that when its habits are more generally known it will no longer remain scarce. The ascertained British localities for it are near Scarborough, Askham Bog near York, Bowdon in Cheshire, and Ranworth Fen, but the total captures do not exceed the estimate given above. It is therefore advisable to place on record in this country what has recently been written on its larval case, &c., in Germany, and it is to Dr. R. Struck, of Lübeck, that we are indebted for this information. In a paper published by him in the "Illustrierte Wochenschrift für Entomologie," Band 1, p. 615 (1896), in which he draws a comparison between the larval cases of *Trichoptera* and *Lepidoptera*, is a notice of that of *P. brevipennis* (p. 617, fig. 1), from which we learn that it is formed of large equal-sized pieces of leaves, that a transverse section of it is triangular (with a cylindrical central tube), and that the sides of the triangle are flat (not concave as in *Limnophilus decipiens* and *nigriceps*, which also form triangular cases of similar materials). Later on in the same journal (under its modified title "Illustrierte Zeitschrift für Entomologie," Band iv [1899]), in a paper entitled "Neue und alte Trichoptern-Larvengehäuse," something further is said by him on the subject (p. 324, fig. 20), to the effect that the cases are equally broad and high at either end, and that the length is 2 to 2½ centimètres. Finally, in 1900, Dr. Struck published in a separate form an extract from a paper under the title "Lübeckische Trichoptern und die Gehäuse ihrer Larven und Puppen," which originally appeared in "Das Museum zu Lübeck," Here, at pp. 21-22, Taf. ii, fig. 10, the information is slightly more extended, and we learn also (p. 31) that the larva is full-grown in June, and frequents ponds. This embodies what has been written on the larval habits and case. As to the perfect insects:—In the summer of 1900, Mr. Morton visited Norway, and published the results of his journey in this Magazine for 1901, and at p. 29 he states that near Domaas he found *P. brevipennis* at a shallow pond overgrown with various water-weeds, that the insect was "sluggish," and that its favourite position was on the stems or leaves of *Caltha*, but that a few were beaten from pine trees. This information, combined with Dr. Struck's account of the case, is very valuable, and according to records of previous captures in this country, it is yet not too late in the year to search for the insect here, and probably with more success than has rewarded previous attempts, which have been made under somewhat erroneous premises as to habits, &c.—R. McLACHLAN, Lewisham, London: June 20th, 1902.

Agrionina near Oxford.—The pleasant annual function initiated by Prof. Poulton, by virtue of which the Officers and Council of the Entomological Society of London are invited to meet the Curators of the Hope Museum of Zoology, was observed this year from July 5th to 7th. As is usual a factor in the function consisted in a boating excursion on the Charwell, and I think more entomological work was done than on former occasions (one never expects much on such excursions!). The writer confined his attention to *Agrionina* (and some others joined), which seemed very abundant, and the Charwell is just such a river as many of them delight in. Collecting from a boat in motion is not easy, and is at times not without an element of danger in it, nevertheless frantic, and usually futile, efforts

were made to catch the dragon-flies under such conditions, and one or two of us tried a more orthodox working on shore. I "bottled" a good many, but am sorry to say that more than one half of them were so rotten with the steaming they underwent (the heat being very great) that they fell to pieces on attempts to prepare them, although most of them were alive on the morning of the same day, and I set only about a dozen specimens altogether. But in any case the following short list embodies all that were actually caught by me:—

Platycnemis pennipes, Pall., was in *myriads*, and probably formed more than nine-tenths of the individuals seen; a few were of the form *lactea*, Selys, which is a true dimorphic condition common to both sexes, and not a seasonal or sexual variation, nor due to immaturity: in the South European species known as *latipes*, Ramb., there seems to be no blue form. *Ischnura elegans*, V. d. L., tolerably common. *Agrion puella*, L., a few. *A. pulchellum*, V. d. L., was found in one specimen amongst my captures; Mr. Holland, of the Hope Museum, told me he had recently taken it near Oxford, probably in another locality. In addition to the foregoing, *Erythromma* and a *Lestes* were thought to have been *seen*, but none were captured.—ID.: *July 10th*, 1902.

Ischnura pumilio, Chp., in Ireland.—When working up some of my Irish material I came across a specimen of *Ischnura pumilio*, Charp., taken by myself at Westport on June 28th, 1886; the exact locality where it was taken was on the Carabeg River, which flows through Lord Sligo's property. I do not think this species has been recorded from Ireland previously.—JAMES J. F. X. KING, 1, Athol Gardens Terrace, Kelvinside, Glasgow: *June 17th*, 1902.

Obituary.

John William May, F.E.S., died at 141, Finborough Road, Earl's Court, London, on June 17th, in his 78th year. He was one of the oldest Members of the Entomological Society of London, having been elected in 1860, and was on the Council in 1883 and 1884. Though practically unknown to the present generation of entomologists, he was formerly a nearly constant attendant at the meetings of the Society, and at the social gatherings and excursions of the Entomological Club. We last met him about two years ago, and remarked that time had made but slight visible impression on the tall, erect, spare figure so familiar to us in years gone by. He took a keen interest in entomology, and we think had amassed very considerable collections, especially in *Coleoptera* and *Hymenoptera*: in the latter Order he had a considerable collection of British parasitic forms of his own taking. But he published little, if anything. Personally he was quiet, amiable, and retiring. Probably the family was of Dutch extraction; at any rate, his father was in business in the City of London as a Dutch shipbroker, and also held the position of Consul General for the Netherlands. When we first met the son (about 1868) he was in the business, and was Vice-Consul (succeeding to the higher office on the death of his father). But for a good many years he had relinquished both business and Consular duties. He was a Corresponding Member of the Entomological Society of the Netherlands, and a Knight of the Netherlands' Lion.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *June 16th, 1902.*—Mr. R. C. BRADLEY in the Chair.

Mr. R. C. Bradley showed *Syrphus barbifrons*, Fall., from Sutton Park, taken on April 14th last. He went specially to search for it, and found it scarce and very difficult to distinguish from *Melangyna quadrimaculata*, Ver., amongst which it was flying. The latter species is very common, the former species very rare and local, and possibly overlooked amongst the many *quadrimaculata*. He obtained six ♂ and five ♀ with much hard work; and also at the same time one *S. arcticus*, Zett. ♂. All were taken flying to sallow bloom. Mr. C. J. Wainwright, a box full of *Trypetidæ*, including a large number taken on July 13th, 14th, and 22nd, 1901, in Wyre Forest. On these three days he obtained no fewer than 13 species of this one family. *Trypeta onotrophes* Lw., in great abundance. *T. florentina*, L., and *T. serratulæ*, L., not common, but a nice series of each from various thistles; *Urophora stylata*, F., *Carphotricha guttularis*, Mg., and *C. pupillata*, Fall., singly; *Tephritis miliaria*, Schrk., common; *T. proboscidea*, Lw., a short series, *T. ruralis*, Lw. (2); *T. tessellata*, Lw., common; and a few of the commoner and more usual species.—COLBEAN J. WAINWRIGHT, *Hon. Sec.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, *May 22nd, 1902.*—Mr. F. NOAD CLARK, President, in the Chair.

Mr. Edwards exhibited fine specimens of *Morpho cypris* from South America, and several species of the genus *Caligo*. Mr. F. M. B. Carr, a series of *Boarmia cinctaria* from the New Forest, including one nearly uniformly dark, another with a wide central light band, and one with a dark basal band. Mr. Barnett, *Hybernia marginaria* from West Wickham woods, one example approaching the form *fuscata*. Mr. South, ♂ and ♀ *Liphyra brassolis*, with ova, preserved larva, larva skins, a pupa, and a pupa case, illustrating the curious life-history of this Queensland Lycænid, received from Mr. Dodd, and read notes. Mr. B. W. Adkin, series of *Tæniocampa miniosa*, pale forms, and series of *T. incerta*, both from the New Forest. Mr. Montgomery bred *Pieris napi* showing slight gynandromorphism in the markings. Mr. Main, living larvæ of *Lithosia mesomella*. It was remarked that this larva has spatulate hairs. Mr. Lucas read the Report of the Field Meeting held at Bookham on May 10th.

June 12th, 1902.—The President in the Chair.

Mr. Ashdown exhibited living larvæ of *Attagenus pelli* feeding on wool. Mr. Tonge, a *Noctua* he had recently captured, and which was afterwards recognised by Mr. South as a worn and doubtless hibernated example of *Hadena protea*. Mr. Moore, a specimen of the rare *Pseudacræa Trimenii*, from the Transvaal Colony, which differed from the type in the large area of white on the lower wings. Mr. Lucas, *Gryllotalpa vulgaris* (the mole cricket) from Brockenhurst, and an example of the Dipteron *Meriania argentifera* from the New Forest, and new to Britain. Mr. R. Adkin gave a Report of the Annual Congress of the S. E. Union of Scientific Societies, held at Canterbury on June 5th and 7th. Mr. Hy. J. Turner read a Report of the Field Meeting held at Reigate on May 24th.—HY. J. TURNER, *Hon. Secretary.*

ENTOMOLOGICAL SOCIETY OF LONDON: *June 4th*, 1902.—The Rev. Canon FOWLER, M.A., D.Sc., F.L.S., President, in the Chair.

Mr. Stanley W. Kemp, of 80, Oxford Gardens, Notting Hill, W., was elected a Fellow of the Society.

Mr. H. W. Shephard-Walwyn exhibited a recently-emerged male specimen of *Lampides baticus* taken at Winchester in September 1899, and two varieties of *Lycæna Icarus*. Mr. C. P. Pickett, one asymmetrical male and two females of *Dilina tilia*, and a series of the same insect showing great variation of colour and marking, bred during May, 1902. Mr. F. Merrifield, enlarged photographs of larvæ of *Hygrochroa syringaria*, also photographs of the dark brown bronzy pupa of this species, in its hammock of open network of silk, very slight, but exceedingly strong, from the bottom of which the larval skin is projected, not shortened and compressed, but pushed through the network, and hanging down like a long tail, so as apparently to attain the same end as in the larval stages, the disguising of its real nature; it looks very like an ordinary pupa. Professor E. B. Poulton, F.R.S., a lantern slide showing the perfect protective resemblance of *Hybernia leucophaæaria* to the oak trunk upon which it rested. Mr. A. Bacot, hybrid larvæ resulting from a pairing between a male *Malacosoma neustria* and a female *M. castrensis*, also larvæ of *M. neustria* and reputed larvæ of *M. franconica* for comparison. He said that this year's brood of hybrid larvæ had separated into two batches, the "Forwards" being now nearly full fed, and from one and a half to two and a half inches in length. The "Laggards" were not yet half-grown, being only half to three-quarters of an inch long, in this respect exactly following last year's brood resulting from a similar cross, in which case the "Forwards" produced only female specimens, while the "Laggards" produced only males.

Mr. H. J. Elwes, F.R.S., read a paper on "The Butterflies of Chile," and exhibited a selection of the specimens he had taken during December, January and February in that country. He pointed out that the number of species of butterflies found in Chile was extremely small considering the large area, varied physical and meteorological conditions and rich flora of the country. The endemic species of *Satyridæ* and *Hesperiidæ* constituted about two-thirds of the whole butterfly fauna, *Nymphalidæ* and *Lycanidæ* being very few in numbers. Some butterflies of *Holarctic* types, such as *Colias Vautieri*, had an extremely wide range and extended with little variation right down to the Straits of Magellan. Among the most remarkable species which he showed was the unique Satyrid, *Argyrophorus argenteus*, the upper-side of which is of a brilliant metallic silver colour, nothing similar existing in the whole family. This flies on open grassy hillsides, whilst in the forests close by a *Hesperiid*, *Cyclopides puelma*, has its wings on the under-side entirely of a metallic golden colour, this also being unique among the *Hesperiidæ*. Mr. S. L. Hinde read a paper, illustrated by lantern slides, upon "The Protective Resemblance to flowers borne by an African Homopterous insect, *Plata nigrocincta*, Walker." He said that "the cluster of insects grouped to resemble a flower spike," which forms the frontispiece of Professor J. W. Gregory's "Great Rift Valley," had attracted some criticism, and that as he was familiar with the insect figured, and with its larva, in a wild state, it seemed desirable to publish the evidence. In the plate the insects are collected on the vertical stem, the green individuals uppermost considerably smaller than the red beneath, like the unopened

green buds towards the top of a flowering spike as compared with the expanded blossoms below. The separate representations of the green and red forms, however, indicate no difference in size, and experience confirms this conclusion, so that the impression conveyed by the frontispiece plate is erroneous. After further noting that the uniform deep pink colour of the exposed parts of the insects figured was also incorrect, Mr. Hinde remarked that he had never seen the insects grouped according to their colours, but invariably mixed, that he had never found larvæ and imagines on the same stem or even together on the same tree or bush, nor did the imagines affect vertical stems, but always those actually or approximately horizontal. It does not by any means follow that Professor Gregory was mistaken in his impressions, but it is certain that conditions are common other than those recorded by him. When disturbed the imagines fly, and the larva hops, a short distance in any direction, but soon collect into groups again. The larvæ toward the end of a growing branch are the smallest, and this arrangement might possibly reconcile Professor Gregory's account with more recent observations. —H. ROWLAND-BROWN, *Hon. Sec.*

ANTIPODEAN FIELD NOTES.

I.—NEW CALEDONIA, THE NEW HEBRIDES, AND ADJACENT ISLANDS.

BY J. J. WALKER, R.N., F.L.S.

After a week spent in strict quarantine—my first experience in H.M. service, as I sincerely trust it is my last, of that venerable and much-abused institution—I was able, on June 6th, 1900, to land for the first time at Nouméa, New Caledonia.

The general aspect of this great island, in its southern portion at any rate, is by no means tropical. The first impression is that of a mountainous and fairly verdant, but almost treeless land, such as may be matched on many parts of the coast of old Caledonia. Near the shore, and in the outskirts of Nouméa, a few clumps of coco-nut palms and fruit-trees relieve the general monotony, and along the sides of the numerous and well-kept roads *Acacias*, *Poinciana regia*, and other shade trees are planted. The steep hills which rise immediately at the back of the town, and on which it is partly built, are covered with coarse grass, clumps of the *Agave americana*, which here grows like a weed and flowers profusely, and a thin scrub, chiefly of *Casuarina* and the "Nianli," *Melaleuca viridiflora*; this latter being a small straggling tree, rarely exceeding 30 feet in height, the foliage of which yields an aromatic essential oil, very similar in its properties to the well-known "cajeput oil" of the Moluccas. Mangroves are much in evidence on the low swampy ground, which in many place fringes the harbour, and inland the hills merge into bare rugged mountains, 3,000 to 4,000 feet high, rising in Mount

Humboldt, one of the highest summits in New Caledonia, to 5,360 feet. In the north, these mountains are clothed in parts with true forest, which appears to be almost absent in the southern part of the island.

Nouméa is a clean and well laid out town, but the houses are poor in appearance, and mostly built of wood and corrugated iron, while the public buildings, though large and commodious enough, have one and all the aspect of barracks. It contains about 7,000 inhabitants, exclusive of the numerous convict population, who are nearly all quartered on one or two small islands in the harbour. The town boasts of a small Museum, in which the ethnology and mineral products of New Caledonia, and especially the splendid land-shells (*Placostylus*, &c.) for which the island is so famous among conchologists, are well represented; but the collection of local insects is hardly to be reckoned as even second rate. It is true it contains a few fine *Coleoptera* and *Orthoptera*, but these, I believe, came from the more luxuriant northern part of the island, as I could not see nor hear anything of them in the neighbourhood.

For several miles round Nouméa, as is so often the case in Australasia wherever a settlement has been made by civilized man, the native flora has been almost entirely driven out before the inroads of those hardy plants and weeds which always follow in his footsteps. That great pest of tropical cultivation, the *Lantana camara*—the flowers of which seemed to me here to be less attractive to insects than is usually the case—covers whole acres of ground in riotous luxuriance, and common world-wide *Mimosæ*, *Verbenacæ*, *Solanacæ*, *Compositæ*, and other intruders, including many of our familiar British wayside weeds, meet the eye at every turn along the roads, and in the few cultivated fields. The English sparrow, bold and familiar as at home, is the commonest bird to be seen about the town, and our large garden snail, *Helix aspersa*, presumably introduced in the first instance to be eaten, is now very plentiful, in the Loyalty Islands as well as here.

As Nouméa was our head-quarters and coaling station during our period of duty in these waters, we made several visits and spent a fair amount of time here, finally leaving for Sydney at the end of September. During this period the weather was very pleasant, fine and sunny, with but little rain, and the heat was at no time very great. The roads were usually exceedingly dusty, and at our first arrival, any pleasure in walking outside the town, or in collecting, was effectually spoiled by the mosquitoes. These creatures, in

number and pertinacity, though fortunately not in virulence, surpassed everything of the kind I have seen in all my wanderings in the Tropics or elsewhere. On some days it was quite out of the question to approach a pool of water, or stand still in a shady place; and even on the open roads, in the full glare of the sunshine, one's clothes were often absolutely black with the myriads of these bloodthirsty little wretches, so that I was, in self-defence, compelled to carry a supply of camphorated carbolic acid, for frequent application to my face and hands. The nocturnal mosquitoes, though luckily not as numerous, were much more venomous than these day-biters, which after attaining a maximum in July, rapidly decreased in numbers, and were almost all gone in September. Ants, too, were a great nuisance, though less aggressive than the mosquitoes, as they swarmed under every log and stone to the exclusion of more desirable insects, and some of the smaller species bit and stung very sharply. Another insect pest, which I was rather surprised to meet with here, was a species very like our well-known Forest-fly, *Hippobosca equina*. In the New Hebrides, mosquitoes and flies, though by no means absent, could not be regarded as at all numerous or troublesome while we were there.

With these exceptions, insects were by no means abundant at Nouméa, and at no time was I able to get away for any distance into the country. The dry open hillsides were especially unproductive, and almost the only good piece of collecting-ground which I could find was at "Anse Vata," on the coast about three miles away from the town. Here a few acres of level land, covered with apparently indigenous and almost undisturbed "bush," produced a good many interesting insects, including a fair number of butterflies. Of these the most important, and certainly the most beautiful, was the fine blue *Papilio Montrouzieri*, Bdv., which was occasionally seen flying even in the streets of Nouméa; and at Anse Vata, especially in September, it was not at all uncommon. This insect, like its larger relative, the *P. Ulysses* of Amboyna, is shy and wary, and as it usually flies rather high, is by no means easy to catch. I found the best way to secure the insect was to get out to its head-quarters not later than 8 a.m., at which time it might sometimes be easily approached, when feeding at the *Lantana* flowers; and later on in the day, to sit down under the shadiest tree I could find, ready to jump up directly one came sailing down the path. But the brilliant and imposing appearance of *P. Montrouzieri* does not at all conduce to accurate practice with the net, and when caught, a large proportion of the specimens were found to be worn and broken. A good deal of time

was spent by me in searching likely-looking plants for its larva, but without success. In the same locality I met with the handsome *P. Amyntor*, Bdv., but it was very scarce; this species is a slow and heavy flyer, and prefers the most shady places, having, when on the wing, a strong resemblance to a large ♀ *Hypolimnas Bolina*, L. The last-named species was very common, and the ♀'s were large and fine, but not very variable, resembling closely the dark and well-marked form I used to take at Port Darwin, N. Australia. I saw in the Museum what is probably a wet-season form of the ♀ (*H. pulchra*, Butl.) with the ground colour of the wings almost entirely bright fulvous-red, but this I could not meet with. The Australian representative of the widely-spread *Danaüs Chrysippus* (*D. petilia*, Stoll.) was common enough in dry waste places, along with a bright-looking form of *Junonia vellida*, F., and the much-wandering *Anosia Plexippus*, F., with its equally travelled food-plant, the *Asclepias curassavica*, have both long ago found their way to New Caledonia, and become completely naturalized and abundant. A very neat and handsome black and white *Euplœa*, allied to the Australian *E. Corinna*, &c., was fairly common in shady paths, where also *Tachyris Ega*, Bdv., was often met with, flying very sharply and settling abruptly on the under-side of leaves. One or two species of *Terias*, and the pretty and active little black and white *Elodina signata*, Wall., were not uncommon, but by far the most abundant butterfly was *Belenois peristhene*, Bdv., conspicuous, in the dry season form at any rate, by its almost entirely black under-side. Several *Lycænida*, including our *Lampides betica*, L., but none of them at all remarkable, and one or two fairly large *Hesperiidæ*, complete the list of butterflies met with by me. *Deiopeia pulchella*, L., was the commonest moth observed.

Coleoptera were on the whole exceedingly scarce, and I did not come across a single really handsome or conspicuous species. Hardly anything was to be obtained by sweeping or beating, but a few *Carabidæ* and *Heteromera* were found under stones and pieces of wood, as well as on the sea-beach at Anse Vata. In roadside puddles I met with our familiar water-beetle, *Rhantus pulverosus*, Steph., and another well-known "Britisher," *Aphodius lividus*, Ol., was the most common, and indeed, almost the only beetle to be found in dung. Decaying trees and old rotten posts yielded some interesting little *Cossonidæ*, *Colydiidæ*, *Heteromera*, &c.; but my best find was a large prostrate tree (a species of *Ficus*) near the racecourse. Out of this tree, after a tremendous fight with the mosquitoes, I got at least 30 species of

small beetles, including some interesting little *Histeridæ*, *Staphylinidæ*, *Scolytidæ*, *Cossonidæ*, and several very remarkable minute forms allied to *Lamophlæus*, &c. The beetles which usually accompany commerce all over the world were to be found in plenty at Nouméa, and such familiar things as *Calandra oryza*, *Cathartus advena*, *Tribolium ferrugineum*, *Typhæa fumata*, *Silvanus surinamensis*, *Necrobia rufipes* and *ruficollis*, with two or three species of *Carpophilus*, could be picked up *ad libitum* on the whitewashed walls of the houses. But even with these, I could only make up 130 species of *Coleoptera* during my three visits to Nouméa, though it was probably not the best time of year for these insects. *Hemiptera*, *Hymenoptera*, and *Orthoptera* were not abundant, but a few nice forms in each of these Orders were obtained.

We left Nouméa on June 9th for our first trip to the New Hebrides, passing round the south end of the island inside the great barrier-reef, and out by the so-called "Havannah Passage" into the ocean. The scenery here was of a most curious character, a well-wooded belt of low land next the shore, rising into steep barren-looking hills, exposing wide stretches of bare soil of singularly bright red, chocolate, and ochre-yellow colours. On the hillsides, as well as on the low islets inside the reef, were numerous groves of the native pine-tree, *Araucaria Cookii*, which is certainly one of the ugliest trees in the world, from its rigidly upright formal growth and scanty foliage, of dark, almost black colour. When first seen by Captain Cook, in rather thick weather, these trees were even mistaken for basaltic columns! Next day, Aneityum* and Tanna, the two southernmost islands of the New Hebrides, were sighted, the smoke from the active volcano on the latter island being visible in the evening. On the 11th we coasted round Tanna, the scenery of which, at a little distance, is not unlike that of North Devon on an enlarged scale, being a succession of steep, rounded, grassy hills, intersected with beautifully wooded deep valleys or "combes," and rising into an irregular group of peaked mountains about 3,000 feet high. I had no opportunity of landing on Tanna on this occasion, but on the morning of the 12th we anchored in the fine landlocked harbour of Port Vila (or Vila) in the south coast of Efate or Sandwich Island, the largest of the Southern New Hebrides. This is the most important settlement in the islands, and boasts of a few well-built houses and stores, and even of a sort of hotel. The land round the

* The names of Islands, &c., in the New Hebrides are spelt according to the Admiralty Charts.—J. J. W.

harbour is prettily varied, but not very high, and consists, to a large extent, of elevated coral-rock, with recent shells in recognisable condition; huge clam-shells (*Tridacna gigas*) sometimes more than a yard in length, in the holes they occupied when living on the reef, may be seen cropping out even in the paths. Large plantations of coco-nut palms—the dried kernel or “copra” being the chief production of the New Hebrides—have been formed mainly by French enterprise, and bananas, coffee, cacao, and maize are also extensively planted, and appear to thrive to perfection; oranges, limes, and papaws are also very plentiful and of fine quality. The graceful *Areca* palms, often nearly 100 feet high, have mostly been spared in the general clearing of the forest, as the nuts are collected for the China market. Even that unspeakable abomination, the barbed wire fence, is to be met with in this remote spot. As usual, imported weeds are largely to the fore, one of the first noticed being our common sow-thistle grown to a huge size; the bird-pepper (*Capsicum*), and a degenerate form of the tomato, with fruit no larger than cherries, form a dense waist-high growth in the banana plantations, and *Asclepias curassavica* was here larger and finer than I had ever before seen it, even in its native countries. I did not, however, on this occasion, notice *Anosia Plexippus*; it was a wet day, and I saw but few butterflies in my afternoon’s walk, though I took a very fine and handsome *Euplœa*, probably *E. Jessica*, Butl., *Belenois peristhene*, larger than in New Caledonia, and a fine dark and well-marked form of *Melanitis Leda*, were not uncommon, with probably two species of *Terias*, a white-banded *Mycalesis*, and several small “blues.” Beetles, too, were scarce, but a few were met with on foliage and under bark, including a form allied to *Amarygmus* (*Heteromera*) possessed of considerable powers of jumping. I found the widely distributed black earwig, *Chelisoches morio*, F., commonly among ripening bananas, and large black wingless cockroaches of most pronounced odour were only too plentiful under every piece of loose bark. Several kinds of land-shells, including a rare and very elegant little species (*Geotrochus Eva*, Pfr.), were brought out in numbers by the rain.

On the 14th we moved on to Havannah Harbour, another well-sheltered anchorage, between Efate and the smaller Moso Island; the scenery here was very remarkable, from the well-defined terraces of upraised coral extending in regular succession up the hillsides to a height of 800 or 1,000 feet. The weather was still wet, and though I was on shore for two or three hours, nothing was met with that had not been seen at Port Fila, except one or two *Anosia Plexippus* and

Hypolimnas Bolina, and a very brilliant little dark shining blue *Lycænid*, probably *Jamides carissima*, Butl., afterwards observed in most of the islands.

The next two days were spent in visiting some of the smaller islands, lying off Efate and Epi, and I was not able to land, though a good view was obtained of Lopevi, one of the most beautiful and symmetrical volcanic cones in the world, rising steeply from the sea without a break to the height of 4,755 feet. On the evening of the 15th, we anchored for two days in South-west Bay, in Malekula (Mallicolo), a large and fine island, but as yet not much better known than in the time of its discoverer, Captain Cook, owing to the dangerous character of the natives. Thanks, in great measure, to the efforts of the English and Scotch missionaries, the coast or "salt-water" natives have acquired at least a veneer of civilization, and are safe enough, but the "bush" natives, living in the interior of the larger islands, are by no means to be trusted. In the more settled islands, as in Efate, Epi, and Tanna, a certain amount of clothing is worn by the men, but in Malekula their costume is exactly as depicted in Captain Cook's second voyage, a century and a quarter ago, consisting of very little more than a scanty waistbelt, and armlets of boars' tusks, artificially grown into a complete circle. I must confess that the damp and clammy heat prevalent in the New Hebrides often made me envy these lightly clad savages.

Malekula is still almost entirely covered with virgin forest of great height and density, but at South-west Bay there are a few clearings and plantations, and in these I met with a considerable variety of insects. Most of the butterflies already observed at Port Fila were taken here, with the addition of three species of *Euplœa*, the fine green *Danais (Tirumala) moderata*, Butl., and a handsome orange-banded *Messaras*, allied to a Solomon Islands form; a curious slow-flying *Lycænid*, *Scolitantides excellens*, Butl., was also noteworthy. Beetles, though nearly all of small size, were fairly plentiful; out of one fallen tree, sufficiently decayed to allow the wood to be pulled apart in concentric fibrous layers, I got a large number of *Histeridæ* of three species, including a fine small form of the curious genus *Hololepta*; and dead standing trees were full of small *Brenthidæ*, *Cucujidæ*, *Cossonidæ*, *Scolytidæ*, &c. Heavy rain again interfered a great deal with my success in this apparently productive spot.

We moved round to Pangkumu Bay, a pretty little inlet on the east side of Malekula, on the 19th, and I got an afternoon on shore there. The forest here was very luxuriant, including many palms (one

of which yields sago, though not identical with the true sago-palm of the Malay Islands), screw-pines (*Pandanus*) 60 or 70 feet high, handsome variegated *Ocotillas*, fine scarlet *Zingiberaceæ*, and other showy flowers and ferns in endless variety. I visited one of the native villages, consisting of about twenty palm-leaf huts, usually little more than a long sloping roof, with the eaves almost in contact with the ground. These were scattered about in a neatly kept clearing about an acre in extent, where one or two enormous fig-trees, supported on a huge tangle of adventitious stems like the Indian Banyan, had been left growing. At the entrance of the village a series of hollow upright tree-trunks, the tops carved into a hideous but spirited likeness of a grinning human face, served as drums, and no doubt at one time as idols. The natives were quiet and friendly enough, but their gaunt long-headed pigs, of which numbers were tethered about the huts, were by no means so, and were not quite safe to approach. Yams, the staple food of the natives, are largely cultivated here, the foliage, which is very like that of the allied Black Bryony (*Tamus communis*), being neatly trained over trellis-work, somewhat after the manner of hops. On this occasion, I did not get many insects, but from Mr. Truss, a coffee-planter at Pangkumu, I afterwards received a few interesting beetles, including a large luminous *Elater* (*Photophorus* sp.) said to be not rare in the islands at times, but which I did not succeed in finding myself.

On June 21st we arrived at Port Resolution, in Tanna, once a fine land-locked harbour, but almost destroyed as such a few years ago through the bottom having been upheaved bodily by a violent earthquake. The smoke and glare of the active volcano Yasowa, mentioned by Captain Cook in his account of Tanna, could be seen from the anchorage, and early next morning a party of five, including myself, set out to reach the crater, about five miles distant. Our way for the first half of the journey was along a shady path, through fine and luxuriant forest, but with very little insect life, except a large flat-backed grey weevil (probably a *Rhynchogonus*). This was not rare on the broad leaves of the Kava (*Macropiper methysticum*) which is still in use as an intoxicant by the natives of the New Hebrides. On turning a corner in the path, we were somewhat "taken aback" by walking right into a native village, where at least 250 stalwart savages, in full war paint and very little else, and all armed with "trade" rifles, were assembled. The aspect of the crowd was decidedly truculent, and by no means reassuring, but we soon found that the gathering was a peaceful one, being in honour of the

marriage of three of the dusky belles of the village. Preparations for the wedding feast were there, in the shape of huge piles of coconuts and yams, some of the latter almost as big as a man's body, as well as several porkers, tied down to poles, and protesting loudly against their impending fate. The natives were perfectly friendly, and the chief readily told off a couple of men to conduct us to the top of the volcano, our guide from the mission-house having bolted as soon as he saw the crowd. The forest ceased about half-a-mile from the village, and we entered on a wide plain, quite bare, except for a few scattered *Pandani*, and deep in loose, reddish ashes, with steam escaping from numerous crevices and small circular apertures or "fumeroles." Out of this plain rose the steep terminal cone of the volcano, composed of loose cellular scoria and abundance of the filamentous lava known as "Pele's Hair," and we gained the edge of the crater, 1,100 feet above the sea, without much difficulty. The sight amply repaid us for our long and hot walk, the crater being some 250 yards in diameter, and at least 500 feet deep; at the bottom several glowing openings like furnace-mouths could be seen, one of which threw up a continuous shower of large masses of bright red-hot and very fluid lava, with a deep bubbling roar, to a height of quite 30 or 40 feet. This was interrupted, at intervals of about ten minutes, by a tremendous detonation in which fragments of red-hot stone, some of them as large as a man, were thrown far above the rim of the crater; most of these fell back into it again, but it would have been very dangerous to stand on the leeward side, to say nothing of the sulphurous vapour, which was very copious and pungent, even to windward. The volcano was said to be at this time in a very quiet state, but the explosions are often heard at Aneityum, 50 miles away, and even sometimes at Port Fila, distant 150 miles. On the very edge of the crater I caught a stray specimen of the pretty *Danaïs hebridina*, Butl., its delicate green colour somewhat faded by the sulphurous fumes, but it will serve as a souvenir of my visit to Mount Yasowa.

Returning to Nouméa on June 24th, we started on another cruise to the New Hebrides on July 16th, and reached Port Inyeug, in Aneityum, on the following afternoon. Much of the timber here had been cleared away for the supply of a sawmill, now abandoned, and its place was taken by dense thickets of weeds, often higher than one's head. In a short walk I found *Danaïs petilia* (the only time I saw this species in the New Hebrides), and rather fine forms of *Hypolimnas Bolina* and *Melanitis Leda*; and bottled a few *Coleoptera* (*Uloma*, *Figulus*, a nice little *Pselaphid*, &c.) from under rotten logs

about the old sawmill. Undine Bay, in Efate, was visited on the 19th, and a few insects and land-shells were obtained here; and on the evening of the 20th we anchored in Ringdove Bay, an open roadstead on the west side of Epi (Api) Island. This is one of the finest and most picturesque islands in the whole group, the steep hills being covered with high and almost unbroken forest, to which the abundance of climbing plants, hanging in dense festoons from almost every tree, gives an aspect of peculiar luxuriance. In the roadstead a species of *Halobates*, probably *H. Wullerstorffi*, Frauent., was seen in some numbers; it was observed, perhaps in this very spot, on the occasion of the "Challenger's" visit to Epi (Narrative of the Cruise, vol. I., part 2, p. 512). We remained here until the 23rd, and I found it a very good locality for insects. *Anosia Plexippus* was particularly common, and nearly all the butterflies hitherto met with in the New Hebrides were observed, with the addition of a fine *Doleschallia*, probably *D. Herrichi*, Butl., *Acræa Andromache*, two or three fresh species of *Euplœa*, and a very fine orange-banded *Rhinopalpa*, allied to *R. pavonia*, Mathew, of the Solomon Islands; but on this occasion I did not succeed in catching a specimen of the latter. Beetles, too, were met with in fair numbers, but as usual, nearly all were of small size; the most remarkable was a curious little *Endomychid* (*Trochoideus* sp.) with greatly enlarged club to the antennæ, giving it at first sight a deceptive resemblance to a *Paussid*; this was found not rarely with ants under bark, and I had previously taken one or two at Nouméa in a similar situation.

After a flying visit to Pangkumu Bay, where I took a specimen of the fine *Rhinopalpa* observed at Epi, and to the beautiful volcanic island at Ambrym, where I did not get a chance to land, we proceeded along the west coast of the little-known and very picturesque Aragh-aragh or Pentecost Island, where, on the evening of the 25th, I landed for an hour, but too late to find anything, except a single specimen of our familiar *Aphodius lividus*. Next, we visited Aoba or "Leper's Island," consisting of a single great whale-backed mountain 4,000 feet high, everywhere covered with the densest forest, and inhabited by a very interesting colony of pure Polynesian natives, of a clear coffee-brown colour like the Tahitians. They are a much finer and handsomer race than their sooty-black Melanesian neighbours, and of very pleasant and friendly demeanour, judging by those who came off to the ship in their tiny outrigger canoes. On July 27th, we ran over to the south coast of Espiritu Santo, the

largest and loftiest of the New Hebrides, and in the evening anchored off the mouth of a considerable fresh-water stream, marked on the chart as the Renée River.

We remained at this anchorage until August 4th, and our stay here was decidedly the most pleasant and successful time I spent in the New Hebrides. The river was navigable by large boats for about two miles, and then narrowed into a clear rapid stream, running over a rocky bed, with deep pools tenanted by inquisitive little fish, at frequent intervals, and overhung by the most beautiful and luxuriant vegetation. In the forest there were very few paths or clearings, but the bed of the stream formed an excellent, if not very easy collecting-ground, at any rate for butterflies. These were tolerably plentiful, and consisted mostly of about four species of *Euplœa*, *Danaïs moderata* and *D. hebridina*, *Messaras*, *Doleschallia*, a few *Lycœnidæ*, etc. In addition to these, a very fine and handsome species of *Parthenos* was fairly common, but not easy to obtain in good order, and I caught two or three specimens of the white-banded black *Papilio Hysicles*, Hew.—allied to my old acquaintance, *P. Canopus*, Westw., of North-west Australia—out of a good many individuals seen. A few interesting fresh forms of *Coleoptera* turned up, and land-shells, mostly of the curious genus *Diplomorpha*, almost peculiar to the New Hebrides, were not rare in the forest. *Halobates* could be caught in plenty from the ship's side on calm days, and a very large white-banded dark grey moth with tailed hind-wings (*Nyctalemon* sp.) frequently came off from the shore at dusk. Our sportsmen met with little success, as the forest here, as in all the other parts of the New Hebrides visited by us, was exceedingly poor in all the higher forms of animal life. Three or four species of rats and mice are the only land Mammalia indigenous to the Islands, besides which there are several species of bats; of these latter the large fruit-eating "Flying Foxes" (*Pteropus* sp.) are very abundant, and do a good deal of damage to the banana plantations. Despite their rank odour and ugly, almost diabolical appearance, these creatures are sometimes eaten by the French settlers. Lizards are tolerably numerous, and snakes of two or three species, reputed to be venomous, are said to be met with in the forest, but they must be scarce, as I never either saw or was able to procure one. At the Renée River parrots were plentiful enough, as well as a large and handsome fruit-pigeon (*Carpophaga oceanica*), but the height of the trees which they frequented made it very difficult to shoot them. Fish were apparently abundant, but as they refused every bait we could offer them, they could

only be obtained by the not very sportsmanlike method of blowing them up with gun-cotton during torpedo-practice; moreover, many of them are poisonous at times, and we had to be careful not to repeat the experience of Captain Cook during his visit to these islands, as related in the account of his second Voyage.

Our next move was round the north point of "Santo," as this island is familiarly called, and on the afternoon of August 5th, I had a few hours on shore at the mission station at Terebu. Here I got a few nice land-shells and beetles, including the handsomest *Mordella* I have ever seen; butterflies were very scarce, but I found a few young larvæ of *Papilio Hypsicles* on orange, and succeeded in rearing them to the perfect state. We arrived at Port Fila on the 8th, and remained there until the 13th; during this stay I found several *Coleoptera* not previously met with, including a very fine *Brentid*, various *Cossonidæ*, *Histeridæ*, small *Heteromera*, weevils allied to *Acalles*, and a good sized *Passalus*? in numbers, mostly under logs in the plantations. A rather handsome linear red and black beetle of the family *Hispidæ* (*Promecotheca* sp.) was plentiful on the young coco-nut palms, eating the softer tissue of the fronds, and reported to do much damage to them at times. *Anosia plexippus* and *Acraea Andromache* were now plentiful, and a fresh butterfly, *Atella Bowdenia*, Butl., was observed, but it was very shy and difficult to catch.

The fine lofty island of Eramango was visited on the 13th, but too late in the day to admit of landing, though a number of large *Sphingidæ* and other moths were attracted off to the ship by the electric search-light which was burned in the evening. We moved over to Tanna the next day, and anchored in Wei Sisi Bay, quite close to the foot of the volcano. Landing in the afternoon, I saw a good many butterflies, chiefly *Euplæas*, but all too high up in the trees to be easily taken. Beetles seemed rather more plentiful than usual, and I got a good many that were new to me, including one of the most beautiful *Clerids* I have ever seen; this was running and flying about the tree-trunks just in the style of a *Cicindelid*, and at first I mistook it for one of the smaller cylindrical forms of that group. On this occasion I was assisted in collecting by some small native boys, and it was rather startling to see them catch and handle large and savage-looking ground-spiders, which I was bottling on behalf of a friend in Sydney, and which I would not on any account have picked up without a pair of forceps.

Proceeding on our way to Nouméa, on the 16th we anchored off the chief French station in the Loyalty Islands, Chepenehe, in the

island of Lifu. A greater contrast between the aspect of the Loyalty Islands and that of the lofty and luxuriant New Hebrides we had just left can hardly be imagined. Lifu is nothing but an enormous coral reef, upraised to a height of about 150 feet above the present sea-level, and presenting white chalk-like cliffs to the sea. As in the New Hebrides the corals, as well as the recent marine shells plentifully strewn on its surface, are in quite recognisable condition. The entire island is clothed with a dense low "bush," with plenty of fruit-trees and coco-nut palms round the villages, and with numerous groves of the funereal, mast-like New Caledonian pines. There are no streams, and water is scarce, at any rate in the dry season, it being obtained from deep wells and caverns in the coralline rock. The natives are a good-humoured and cheerful race, much superior in appearance to those of the adjacent groups; as a rule they are well clothed, but all go barefoot, though how they manage to get about over the horrible coral surface of the islands is a mystery to me.

In one or two walks on shore I found butterflies fairly common, mostly of species observed at Nouméa, though there were one or two that I had not yet met with. *Papilio Montrouzieri* was seen on several occasions, but seldom at close quarters, and I managed to miss every one which gave me a chance. A specimen of *Pyrameis cardui*, which flew on board the ship and was secured, was of the small Australian form *Kershawii*, McCoy. Beetles were scarce, but I got a few interesting little forms, including a small long-horned *Anthribid* allied to the curious New Zealand genus *Proscoporhinus*. The most abundant insect at Lifu was the common European honey-bee, also plentiful in New Caledonia. Land-shells (*Placostylus*) of large size, but nearly all dead and weather-beaten, were very numerous. We called in at Maré Island, similar in character to Lifu, but rather more elevated, on the 20th, but I did not land there; and were back at Nouméa on the following afternoon.

Our third cruise to the New Hebrides commenced on September 3rd, and after a couple of days spent at Port Fila, where I got a good many beetles and land-shells, but saw no fresh *Lepidoptera*, we anchored in Ringdove Bay, Epi, on the evening of the 7th. Next morning I went on shore, and found a really good place for butterflies, in a watercourse about a mile inland. The vegetation here was magnificent, and since my last visit some large *Erythrina* trees had come out into great sheets of vivid scarlet blossom, alive with noisy little red and green parrots (*Nymphicus* sp.) and making a fine picture of tropical luxuriance. I took seven species of *Lycanida*

here, all small, but some of them very pretty; the fine *Rhinopalpa* was now not rare, though very wary, and often torn and broken, as was also the case with *Papilio Hypsicles*. *Danais* (three species), *Acræa Andromache*, *Messaras*, *Terias*, *Belenois*, &c., were more or less plentiful, and there were five species of *Euplœa*, two or three in numbers, and one very pretty blue-glossed form new to me, in this productive spot. The beetles included a handsome chestnut-brown *Lucanid*, the finest insect of the Order I met with in all the islands.

Proceeding northward to the Banks Group, in character like the New Hebrides on a small scale, but clothed with even finer and more luxuriant forest, we anchored off the southernmost island, Gaua, on the afternoon of September 9th. When I landed with two of my messmates, we were received on the beach by a highly demonstrative but friendly crowd of stalwart dark-brown natives, all more or less clothed, and armed with spears, bows and arrows, the latter evidently poisoned. They were much amused at my proceedings in search of insects, which did not meet with any great success, as it was too late in the day, and the only butterfly observed in any numbers was what is probably a small form of *Lampides bœticus*; the beautiful little *Jamides carissima*, Butl., found in most of the islands, was also not rare in the dense bush, flashing in and out of the stray gleams of sunshine like a blue electric spark. On the 11th we were at Vanua Lava, the largest of the Banks Group, 3,200 feet high, and eminently volcanic in character. A great deal of sulphur is sent down to the little port from a "Solfatara" nearly in the centre of the island, by an aerial tramway, and the forest for some distance round has been opened up by good paths. This forest was finer and more varied than any I had as yet seen in these parts, and I was especially impressed by one magnificent tree-fern left standing by the side of the tramway, which was at least 70 feet high, with a trunk much thicker than my body. It looked an excellent place for collecting, but unfortunately the day was wet, and insects in consequence were scarce. One fine *Parthenos* and a *Euplœa*, both probably new to me, were caught, and close to the beach I saw numbers of a dark bronzy *Cicindela* settling on the volcanic sand, the colour of which it accurately matched; but it was so shy and active that I succeeded in catching only one specimen, and this at the expense of my net.

On the 12th I landed for half-an-hour on Valua Island to look at a native village, and caught a *Euplœa* or two, and the same evening we anchored in Dives Bay, a remarkable deep indentation in

the small island of Ureparapara. This bay is walled in by lofty forest-clad cliffs of black volcanic rock, its whole aspect suggesting that it is an old crater broken down on the side next the sea. It rained too hard the next morning to admit of landing on this curious island, as I should have liked to do, and we proceeded northward to the limit of our cruise, the small compact group called the Vava or Torres Islands. Anchoring under Hiu, the northernmost island, in the afternoon, I found it, on landing early the next morning (13th), to be entirely composed, like the other islands of the group, of raised coral, elevated to a maximum height of 800 feet, and covered with fairly dense forest, but much less varied than in the islands we had just left. Two species of that genus so characteristic of these islands, *Euplœa*, were very common close to the beach, and were among the finest I have ever seen, and a very brilliant moth (*Glaucopis* sp.) was also plentiful. We moved on to the next island to the south, Tegua, and anchored for several hours, giving me an opportunity of going on shore. Here again butterflies were numerous in the shady bush-paths near the beach, consisting chiefly of five or six species of *Euplœa*, *Atella*, a handsome *Doleschallia*, probably the *D. Montrouzieri*, Butl., *Terias*, sundry *Lycenidæ*, and several others, including a fine black and yellow *Papilio* which I was unable to catch. Some very interesting small land-shells, and a few beetles, were also obtained, and I caught several *Halobates* while wading ashore over the coral reef fringing the beach. In the afternoon we proceeded southwards to Lo, or Saddle Island, and early on the morning of the 14th I had my last chance of landing before we sailed for Nouméa. An hour on shore here, chiefly in the outskirts of a very neat native village, produced a fair number of useful butterflies, including a pair of a fine black *Papilio* allied to *P. Hypsicles*, but lacking the white macular band on the fore-wings. The first specimen of this insect which I saw was in the hands of a small native child, tethered by the body by a piece of thread, and of course too much knocked about to be of any use for the cabinet.

After spending a few days at Nouméa on our arrival there on September 18th, our interesting visit to these remote islands came to an end on the 27th, on which day the "Ringarooma" sailed for Sydney.

H.M.S. "Ringarooma," Picton, New Zealand :
1902.

THE POSITION OF *PHORA* IN THE SYSTEM OF *DIPTERA*.

BY C. R. OSTEN SACKEN, Ph.D., Hon. F.E.S.

In Latreille's "Précis," 1796, where the generic name *Phora* appears for the first time, the genus is placed at haphazard in the following series:—*Anthrax*, *Lispe*, *Phora*, *Musca*, &c.

Meigen, in Illiger's Magazin, 1803, p. 276 (which contains an enumeration of generic names, rather than a deliberate classification), has *Phora* under the name of *Trineura*. In the "Classification" (1804) *Trineura* is placed at the very end of the Order (p. 312), with the remark, "Sonderbare Geschöpfe," which proves that Meigen did not know what to make of them. In the "Syst. Besch.", vi, p. 210 (1830), Meigen recognises the priority of the generic name *Phora*, Latr., although he retains the name *Trineura* for the Family. He places it again at the end of his System, before the *Coriaceæ*. Ever since *Phora*, by the mere force of routine, has retained the same position, always in the vicinity of *Borborus* (with which it has absolutely nothing to do), and always at the end of the *Cyclorrhapha*. The latest excellent Monograph of the *Phoridae* by Mr. Th. Becker (Vienna, 1901) leaves the question of their position undecided.*

For many years I have been collecting facts about the metamorphosis of *Phoridae* in the existing literature, without ever having had the opportunity of observing it myself. But the facts thus obtained are sufficient to confirm me in the belief that the place of *Phora* is among the *Orthorrhapha*, and not among the *Cyclorrhapha*.

The best description of the transformations of *Phora* is that of Dr. J. Schnabl (Deutsche Ent. Z., 1876, pp. 217–220, with figures). The figure of the larva (Tab. I, figs. 1, 2) has a merely superficial resemblance to the larva of the *Cyclorrhapha*. Dr. Schnabl says (p. 217), "Its first and second segments appeared to me much more like the schematic figure of Marno's (Verh. z.-b. Ges. Wien, 1869, p. 325) 'long headed larvæ,' than like that of the *Cyclorrhaphous Diptera*." What Dr. Schnabl has about the pupa (in the letter-press as well as in the figures), reminds me still less of a *Cyclorrhaphous pupa*, especially the pair of divergent spinules anteriorly, and the

* Brauer's successive opinions about *Phora* are, as usual with him, characterized by their arbitrariness, inconsistency and inconclusiveness. In 1880 (Zwoifl. d. Kais. Mus. Wien, i, pp. 14–119, below) he says, "Die Gruppe *Hypocera* (*Phora*) scheint mit den *Borborinen* (!) verwandt zu sein, doch haben die Larven viele Beziehungen zu den *Ephydrinen* (!). Andererseits lassen sich die *Phoriden* noch mit den *Platypesiden* (!) vergleichen." In 1883 (l.c. iii, pp. 11 and 52) he follows up this idea and connects the *Phoridae* through the *Platypesiden* and *Pipunculida* with the *Syrphidae* (!). (These data have already been referred to by me in the Berl. Ent. Z., 1893, p. 382). The otherwise excellent entomologist, Eduard Becker, must have been misled by Brauer's exaggerated notions about the frontal suture, when he introduced the most unnatural group *Hypocera*, consisting of the two genera *Phora* and *Platypesa* in juxtaposition (Wien. Ent. Z., 1882, pp. 49–54).

mode of bursting the shell during the escape of the imago. The attentive study of Dufour's description of the metamorphosis of *Phora* (Mém., &c., de Lille, &c., 1841, pp. 415-424, with a plate) and of the figures he gives, leads me to the same conclusion (compare especially the fig. 6, the pupa and the punctate line, indicating its mode of splitting).

Finally, *Phora*, as a perfect insect, differs from *Musca* (the prevailing type among the *Cyclorrhapha*) in its general appearance, in the structure of all the particular organs, and in its motions: its *running* is an intermittent *gliding*; its different modes of *flying* include a peculiar up and down motion, with the legs stretched out, and kept more or less together, an action which I have also observed in some *Orthorrhapha*, as *Hybotidæ* and *Rhyphidæ*, but *never* in a Muscid.

Thus excluded from the *Cyclorrhapha*, *Phora* must find its place among *Orthorrhapha*.

The presence of numerous macrochætæ, of pulvilli, and of a dichoptic head in both sexes, prevents *Phora* from being located in any of my super-families of the *Orthorrhapha*, excepting that which I have called *Energopoda* (and which includes the *Asilidæ*, the *Empidæ* and *Lonchoptera*), and it is at the end of this superfamily that I placed *Phora*. But this place is a merely *mnemonic* arrangement, based upon the presence of the characters just enumerated, which exclude *Phora* from the other superfamilies and are present in the *Energopoda*. A real *affinity* with *Phora* does not exist anywhere. (For details, compare my paper, "Preliminary Notice of a subdivision of the *Orthorrhapha Brachycera*;" Berl. Ent. Z., 1896, pp. 365-373).

Heidelberg: August, 1902.

OGCODES GIBBOSUS, A RARE DIPTERON STORED BY CRABRO INTERRUPTUS.

BY THE REV. H. S. GORHAM, F.Z.S.

On July 21st, 1900, at Emery Down, New Forest, I discovered a thistle (*Cnicus palustris*) with a hole in it about three feet from the ground, round which several spiders seemed watching, and on investigation I found the hollow stem to which the hole led to be filled for about eight inches with numbers of the rare fly *Ogcodes gibbosus*. There were perhaps twenty-five or thirty flies, and then a wad of frass and *débris*, and then another segment, and a wad; and in some a Hymenopterous larva engaged in devouring the stored-up flies.

The spider (of which I do not at present know the name) bore a remarkable likeness to the flies, and at first I rather naturally felt

perplexed as to the connection between them. Dr. Sharp, who was then at Emery Down, and to whom I gave half of the store in the stem which I cut off, pointed out to me, that as recorded in the Cambridge Nat. Hist., vi, p. 490, the habits of *Acrocera* or *Ogcodes* "are very peculiar, the larvæ so far as known living as parasites within the bodies of spiders or their egg-bags."

I have now very little doubt but that the spiders I observed were of the species that is the host of these parasitical flies; but I do not think their mimicry of the *Ogcodes* has before been noticed. I can only suggest that the fly is very local, and that where it occurs so must the spider, and that its presence near the hole used by the Hymenopteron was only accidental. From one pupa I raised the bee which Mr. Morice informs me is *Crabro interruptus* with very little doubt.

The hole in the thistle was probably due to its having been previously tenanted by a larva of the moth *Gortyna flavago*, which I have bred from similarly perforated thistles. Altogether there must have been more than fifty of the fly thus stored, dead, but quite fresh, and with the exception of those that had been partially eaten, in good condition. I am not aware if any instance has been recorded of the storing up of these flies since Westwood noticed the fact in the Modern Classification of Insects, vol. ii, pp. 189 and 545.

Mallota cimbiciformis, Fln. (*eristaloides*, Lw.).—I have two examples of this fly captured by myself in the New Forest; one in 1894, the year in which it was first recorded, the other in 1895, for which I could not get a name till I took them to South Kensington and showed them to Mr. Austen.

Microdon latifrons, Lw.—On May 24th of this year I had the good fortune to secure a specimen of this fly near Lyndhurst Road Station, towards Ashurst Lodge. It was sitting on a leaf rather near the ground. Although this appears to be only the second example that has occurred in Britain, it was at once determined by Dr. Sharp to whom I showed it, from a reference to Mr. Verrall's book; and I have since verified it by comparison with the unique specimen in the British Museum.

Stomphastica flava, Mg.—I have bred this from pupæ found in rotten birch wood, April 30th; the flies emerged May 6th to 20th.

Other good flies I have met with this year are *Calliprobola* (*Spilomyia*) *speciosa* (2); *Didæa fasciata*, New Forest; *Merodon equestris*, not uncommon in my garden at Shirley during June; *Anthrax fenestrata*, sitting on the hot sandy road near Denny Lodge, New Forest.

Shirley Warren, Southampton:
July 16th, 1902.

IS *MACROPHYA HÆMATOPUS*, Pz., A BRITISH INSECT?

BY THE REV. F. D. MORICE, M.A., F.E.S.

In Mr. Cameron's "Monograph" *Macrophya rufipes*, Linn., and *M. hæmatopus*, Pz., are both given as British species, and are said to be easily separated by the coloration, *rufipes* having a red-banded abdomen and white marks on the pronotum and coxæ, while in *hæmatopus* the abdomen is unbanded and the pronotum and coxæ black. I have, however, often been puzzled by British specimens which, according to the above diagnosis, would belong by their abdomen to *rufipes*, and by their other characters to *hæmatopus*. And lately I took near Ripley (Surrey) along with normal specimens of *rufipes* another, which struck me as clearly not differing from them specifically, but which had *all* the characters, including the immaculate abdomen, assigned by Mr. Cameron to *hæmatopus*.

This led me to examine carefully my foreign specimens of the two species, and I then found that, quite apart from the coloration, the two species differ very markedly in sculpture. In *rufipes* the thorax and abdomen are microscopically rugulose and consequently somewhat dull above, and are also rather largely and coarsely punctured. In *hæmatopus* the thorax and at least the basal part of the abdomen are quite smooth and shining, and the punctures so intensely fine as to be almost imperceptible. This difference seems to me much more important than the coloration. But I noticed, also, that in all my specimens of *hæmatopus* the red on the legs was of a deeper tint than in *rufipes* (crimson rather than ferruginous), and that in all my females of *hæmatopus* the clypeus, the scutellum, and all the trochanters were black, while in those of *rufipes* these parts were white or yellow.

Mr. Cameron having mentioned that the only certain British locality for *hæmatopus* known to him was Glanvilles Wootton, I wrote to Mr. C. W. Dale, asking if he would allow me to examine the specimens referred to. He tells me, however, that he does not possess *hæmatopus*, "nor anything at all like Panzer's figure," and that Mr. Cameron's record of it as occurring at Glanvilles Wootton should apply to *rufipes*. He tells me also that the name *hæmatopus* was introduced into the British list first by Samouelle, and refers me for an explanation of the error to Steph. Ill., vii, p. 62. That passage is also cited by Mr. Cameron as an authority for *hæmatopus*; but in it Stephens, after describing what he calls *hæmatopus*, Pz., expressly declines to vouch for its occurrence in Britain!

Pastor Konow, dealing in "Societas Entomologica" (1898) with various questionable records in old writers, mentions a *Macrophya hæmatopus* of Newman, which, he says, is really the male of *M. rufipes*.

As it would seem, from the above, that early British records of *hæmatopus* must be regarded with some suspicion, and as I certainly never myself saw a British specimen having the structural (as apart from the colour) characters of that species, I took the opportunity of a recent passage through London to visit Mr. Cameron's collection, now in the Natural History Museum, hoping to see for myself what the insects were from which he had drawn up his descriptions of the two species. In this, however, I was completely disappointed; for that collection includes no specimen at all either of *hæmatopus* or of *rufipes*! This is strange, for *rufipes*, at least, is certainly no rarity in this country. However, such is the fact! Neither *hæmatopus* or *rufipes* is represented, except by blank spaces, in the Cameron collection.

It seems to me that, under the above circumstances, *Macrophya hæmatopus*, Pz., has at present no satisfactory claim to a place in the British List of *Tenthredinidæ*, and that the insects hitherto recorded under that name are in all likelihood merely varieties of *rufipes*, Linn.

Woking: July, 1902.

A SCENT-PRODUCING ORGAN IN THE ABDOMEN OF THE WORKER OF *APIS MELLIFICA*.

BY F. W. L. SLADEN, F.E.S.

In investigating the phenomenon known as the "joyful hum" of bees I have been led to make some observations which have deeply interested me, and which appear not to have been recorded by others.

It has long been known that bees when swarming will, under certain circumstances, set up a peculiar hum, which seems to be attractive to their comrades.

This hum can be artificially produced by lifting a comb covered with bees out of a hive and shaking off the bees on to the alighting board of the hive. The bees nearest to the entrance commence to hum as they enter the hive. By this act they draw to themselves the other bees scattered around, and these bees, as soon as they have joined the main body, will also commence humming. Thus, the bees that have been attracted attract others in their turn, and this process continues until all have passed into the hive.

The same phenomenon frequently occurs naturally in a modified and less noticeable way whenever the bees of a hive are flying, and especially when they fly in spring-time, or after they have been confined to their hive for a day or two by bad weather; these being the occasions when a number of young bees are more or less doubtful as to the position of the entrance to the hive. At these times there is considerable excitement around the entrance, and a certain number of bees—from two or three to fifty or more—may be observed to give expression to the “joyful hum.” By so doing they indicate the position of the entrance (1) to tired, heavily-laden, old, or chilled bees, and (2) to young bees that are flying for the first or second time; thus much confusion and loss of bee-life are prevented.

Again, when a swarm has lost its queen, the bees that first find her will give expression to the “joyful hum,” and the rest of the swarm will then soon join them.

From these facts it is evident that in the “joyful hum” bees have a method of signalling to one another, which is of the greatest value to them in keeping the members of a swarm or colony together.

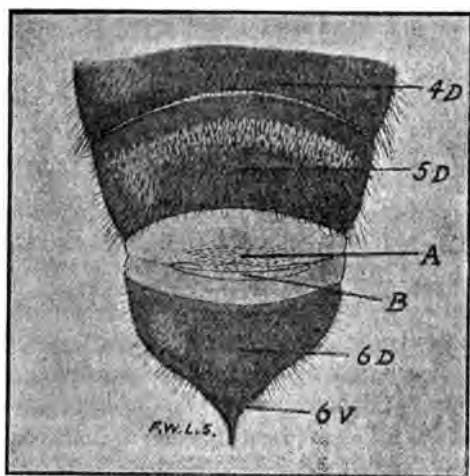
One would naturally imagine that the communication is effected by the *sound* of the “hum.” This pre-supposes that bees can hear. Sir John Lubbock (now Lord Avebury), however, found that both ants and bees are apparently insensible to ordinary sounds, although he was disposed to think that ants (and bees?) are able to perceive sounds which we cannot hear. At the same time he found the sense of *smell* to be highly developed in ants; and of bees he said that it seems clear they possess a keen power of smell (“Ants, Bees, and Wasps,” 1881).

My experiments with humble-bees, which have extended over a period of twelve years, have led me to similar conclusions with regard to humble-bees.

I will not enter here into the question as to whether bees can hear or not, but these points are mentioned because it was in the light of them that I was led to the idea that bees when giving expression to the “joyful hum” might at the same time emit an alluring scent.

When hiving a swarm in July 1900, I recognised a distinct and somewhat pungent odour, something between that of formic acid and iodine. About the same time I noticed that all bees that gave expression to the “joyful hum” in any of the ways above cited, adopted a peculiar attitude. Each bee stood with the apex of the abdomen more or less elevated, and she exposed a large portion of the

membrane connecting the fifth and sixth segments of the dorsum, which normally lies hidden under the 5th segment. It struck me that this membrane might produce the scent I had noticed, and that the scent might be employed as a means of allurement whenever the instinct of any worker belonging to a swarm or colony prompted her to call her comrades.* The very "humming" or fanning seemed to lend support to my theory, for I asked myself—Would not the disturbance of the air caused by the vibration of the wings distribute the scent far and wide? It seemed to me that in no way could the bee distribute the scent better than by elevating that portion of its body from which the scent issued, and by fanning the scent with a vibration of the wings.



By the use of a specially - constructed stage for my microscope, in which I could clamp and distend the abdomen of a newly-killed worker-bee, I was able to get a very fair view of the organ in question (see figure). At the base of the 6th segment is a long narrow depression (B). The surface of this depression and that of

the adjoining portion of the membrane A appeared to be finely rugulose, or covered with a mass of minute vesicules.

I tried a number of experiments in endeavouring to prove my theory, but it was not until March, 1901, that I was able to do this to my satisfaction. I then made the following experiment:—

The dorsal segments of several newly-killed worker-bees were removed *en masse*, and stretched out by means of fine pins on to a sheet of cardboard. In this way the membranes connecting all the

* The effective working of this beautiful arrangement is very strikingly illustrated in the case of the tired, drowsy bees that often enter the hives singly on a cold spring evening. Many of them fall through exhaustion to alight exactly at the entrance, and they would probably perish if it were not for the fact that those who are more fortunate will almost always stand for some time at the portal humming and exposing the scent organ before joining the warm cluster in the hive, although they are often benumbed with cold. A few such bees will rouse any others standing around in a remarkable way, and direct them into the hive; but hardly one of these will go in until it has first done its share of humming, and exposing the membrane. The more bees that have found the entrance in this way, the greater will be the band of hummers; thus, the larger the number of lives in danger the greater is the means of rescue.—F. W. L. S.

segments were fully exposed to view. When preparing the third or fourth of these specimens I suddenly smelled strongly the very same odour that I had noticed with the swarm. I immediately separated the membrane connecting the fifth and sixth segments with as small a portion of these segments as possible, and placed it on a card by itself, and it continued to give out the scent for some time, while the card on which the remainder of the specimen rested soon lost the scent.

The above experiment was repeated with a similar result, but I found that it was not every specimen that would produce the scent.

The experiment is a very simple one, and it can easily be verified by any one.

The organ in question appears to have been first noticed in the year 1883, when Nassanoff of Moscow described it, and an account of his description was sent by Zoubareff to the Swiss *Bulletin d'Apiculture*.

The organ is described as a canal. "At the bottom of this canal a large number of small glands open, each one of which has an oval cell with a well-defined globule. From each cell a duct starts out and extends to the bottom of the canal." Nassanoff further said that the walls of the duct are of a chitinous texture. He assigned a secretory function to the glands and suggested that they produced the perspiration. Zoubareff, while not absolutely rejecting Nassanoff's theory, connected the existence of the glands with the little drops of liquid that bees are said to let fall when they are on the wing, which he said represent the excess of moisture which nectar freshly gathered from flowers contains over ripened honey, and which he thought was collected, and then thrown off by these glands. I have been unable to verify this statement.

The accompanying drawing represents the extremity of the distended abdomen of a worker honey-bee seen from above. *A* is the rugulose portion of the membrane connecting the fifth and the sixth dorsal segments. *B* is Nassanoff's canal.

EXPLANATION OF FIGURE.

Tip of distended abdomen of worker honey-bee seen from above, enlarged.

4D, 5D, 6D—4th, 5th, and 6th dorsal segments.

6V—6th ventral segment.

A—Rugulose portion of membrane.

B—Nassanoff's canal.

Ripple Court, Dover :

June, 1902.

OCCURRENCE OF *TRIENODES CONSPERSA*, RBB., COMMONLY IN SOUTH DEVON.

BY ROBERT McLACHLAN, F.R.S., &c.

The finding, and in some numbers, of a Trichopteron of which there has, I think, been scarcely any record for nearly 40 years, is almost entitled to be termed a re-occurrence. In my "Trichoptera Britannica" (1865) I wrote (p. 113) of *T. conspersa*, "It has been taken in summer at Ringwood, Exeter, Hyde Park, &c." Stephens, in his "Illustrations" (*Lept. longicornis*), says "near London." I have two examples from Ringwood taken there by Mr. G. B. Corbin and received from him in 1864. The Hyde Park example was taken by Mr. H. Pryer, and is now in Mr. C. A. Briggs' possession: but with my recent British, and former continental experience of the habits of the insect, I much fear that the citation of "Hyde Park" was due to an error of memory. The Exeter citation is no doubt due to information from Mr. Parfitt, who in his "Fauna of Devon, Neuroptera" (Trans. Devon. Assoc. Adv. of Science, 1879) says it is a rare species, but has been found "on the Exe in August." What my "&c." may refer to I do not now recollect, but I have some idea that I once saw the species from the Fen district.*

From July 28th to August 11th in this year I was at Seaton Junction in Eastern South Devon, about four miles from Seaton and the same from Axminster. On July 31st I found an example of *T. conspersa* amongst my captures at Whitford, on the Axe, about one mile from Seaton Junction. Thereupon I set to work to find out more about the species, paying frequent visits to the locality, sometimes twice in the same day. As a result I found over forty examples, mostly females. A few were captured by beating the trees near the river; a few were at rest on the iron bridge; but the majority occurred by sweeping the grass and other herbage at the extreme edge of the banks of the river where the current was strong (the species also exists higher up towards Axminster, and on the Yarty near its junction with the Axe). One observation is of importance. One evening when there was an interval of sunshine (a rare occurrence) between 6 and 7, I saw what I was convinced was the species in large numbers flying in a mazy manner close over the surface of the water where it was shallow and the ripple great. My net stick was far too short to reach them, but, by patient waiting, I secured one example, enough to confirm my belief. So much for my own experience. The species is no doubt common on the lower part of the Axe, and on the Avon at Ringwood and Christchurch; possibly on many other streams of a similar nature. It is an elegant insect, owing to its extraordinarily long antennæ and maxillary palpi.

I do not here propose to say anything about its continental distri-

* Since the above was in type Mr. Porritt has informed me that he received examples taken by the late Mr. J. E. Fletcher on the Teme at Worcester. I do not think Mr. Fletcher made any record at the time, but the species is no doubt included in his List in the "Victoria" County series, of which I have not yet seen "Worcestershire."—R. McL.

bution, which is certainly very wide. But I regret not having placed examples of both sexes in alcohol, because I have reason to think that my figures ("Rev. and Synopsis") are susceptible of improvement, and it is very difficult to define the complicated anal parts in dry individuals. Furthermore, a fresh study of *T. interna*, McLach., from Turkestan, is probably necessary. Of this latter I have 2 ♂ and 3 ♀. In one ♂ the anal parts agree fairly well with my figure ("Rev. and Synopsis"); in the other there is more resemblance to *T. conspersa*. I may add that in *conspersa* I have reason to believe that in the branched inferior appendages of the ♂, one branch is mobile and capable of extension in a thumb-like manner.

Lewisham, London:

August 16th, 1902.

DRAGON-FLIES (INCLUDING *ISCHNURA PUMILIO* AND *AGRION MERCURIALE* IN ABUNDANCE) AND OTHER *NEUROPTERA* IN THE NEW FOREST.

BY GEO. T. PORRITT, F.L.S.

From June 18th to July 1st last I spent at Brockenhurst in company with Mr. T. Ashton Lofthouse, of Middlesbrough. The immediate object of my own visit was to collect *Ischnura pumilio*, *Agrion mercuriale*, and other New Forest dragon-flies; but Mr. Lofthouse devoted his time to the *Lepidoptera*. Acting on instructions kindly given to me by Mr. W. J. Lucas, the morning after our arrival I readily found the locality for *Isch. pumilio* and *Agrion mercuriale*, and very soon saw that both species were in abundance, and they became still more so in better weather a few days later. I could indeed have taken almost any number had I wanted them. Both species flew together, though, as Mr. Lucas had already recorded, *pumilio* seemed more partial to swampy ground, whereas *mercuriale*, although also occurring freely in the swamp, was perhaps more plentiful on the clear streams which ran through the boggy ground.

The bright orange-yellow variety, *aurantiaca*, of the ♀ of *pumilio*, seemed much more plentiful than what is considered the ordinary form of the ♀, and was very pretty. A few *Agrion puella* occurred among the *mercuriale*, but it did not take long to enable one to detect the difference, even when on the wing; and although an occasional *Isch. elegans* occurred with the *pumilio*, it was quite a rarity on that piece of ground, which I may add was of considerable area. Another

local species which occurred freely with them was *Pyrrhosoma tenellum*, and of it, a dark bronzy form of the ♀, which does not seem to occur in the Surrey localities of the species, was common. On a broad stream the pretty *Gomphus vulgatissimus* was so common that on one day I think I must have seen at least forty specimens; and with it *Cordulegaster annulatus* was not at all rare. The fine *Anax imperator* occurred, but probably we did not come across its head quarters; and, on one pond at least, *Libellula quadrimaculata* was in numbers. One or two specimens of a large species, probably *Aeschna juncea* were hawking on a heath, but we failed to catch an example. The pretty *Platynemis pennipes* abounded, and in great variety, numbers being ivory-white, with dark transverse markings, and many of the loveliest sky-blue, with longitudinal marks. Of the larger species, the most abundant was undoubtedly *Orthetrum cærulescens*, yet although so plentiful, it was evidently only just well out on our arrival, as all the ♂s were then brown, not a blue one to be seen. A few days sufficed to bring them to the adult colouring, when the blue ♂s were plentiful enough. *Platetrum depressum* was, of course, everywhere, and the blue ♂s of it also became more abundant day by day; the gorgeous *Calopteryx virgo* flitted in plenty about all the larger streams; but, curiously, *C. splendens* was never seen. Lastly, it need scarcely be added that *Pyrrhosoma nymphula* was plentiful enough.

Of *Planipennia*, *Raphidia notata*, *Hemerobius stigma* and *H. concinnus* occurred, the last in plenty, but all of the brownish form; *Chrysopa alba*, *C. tenella*, *C. ventralis*, and *C. perla*, the last two in plenty; *Panorpa communis*, &c. The only *Perlida* noticed were *Isopteryx tripunctata* and *Nemoura variegata*.

Nothing of any note turned up from the little work done among the *Trichoptera*. These included *Phryganea grandis*?, one ♀ only, at sugar; *Glyptotælius pellucidus*, not uncommon; *Limnophilus rhombicus*, *L. griseus*, *L. auricula*, *L. centralis*, *L. luridus*, the last abundant, *Micropterna lateralis*, common; *Sericostoma personatum*, *Goëra pilosa*, common; *Leptocerus cinereus*, abundant, *Mystacides nigra*, &c.

Crosland Hall, Huddersfield :
August 13th, 1902.

AQUATIC ORTHOPTERA IN CEYLON.

BY E. ERNEST GREEN, F.E.S., GOVERNMENT ENTOMOLOGIST, CEYLON.

I see in a report of Proc. Ent. Soc. (in July number of Ent. Mo. Mag.) a note about Aquatic *Orthoptera*, the occurrence of such forms being considered peculiar. We have in Ceylon a large group of

aquatic Acridians, of the family *Tettigidæ*, e. g., *Scelimena harpago*, Serv., and allied species. This species in particular has the hind tibia and tarsus laterally expanded for swimming. The insect frequents the mountain streams of Ceylon, resting on the wet rocks in mid-stream. When disturbed they leap without hesitation into the water, and either swim to another rock, or dive to the bottom, often remaining there for a considerable period. I remember on one occasion observing the larva of some *Tettix* walking about amongst the dead leaves at the bottom of a shallow pool. *Gavalidium crocodilus*, Serv., is another species that frequents wet rocks; but I have never seen this insect actually take to the water.

Peradeniya, Ceylon :

July 28th, 1902.

ON A CICADINE NEW TO BRITAIN.

BY JAMES EDWARDS, F.E.S.

LIMOTETTIX STACTOGALA.

Stactogala, Amyot, Ann. Soc. Ent. Fr., xv, p. 217; *id.*, Méth. Mon., p. 413 (1847).

Opsius stactogalus, Fieber, Neue Gatt. und Art. in Hom., p. 9, t. vii, f. 19 (1866).

Thamnotettix tamaricis, Kirschbaum, Cicad., p. 90 (1868).

Athysanus stactogala, Ferrari, Cicad. agri Ligust., pp. 54—57 (1882); Melichar, Cicad. Mitt. Eur., pp. 258—261 (1896).

Upper fore-parts shining yellowish-green, elytra dull leek-green with milk-white spots. Crown evenly rounded in front, not longer in the middle than at the sides, in the male three times, in the female three and half times, as broad as long. Frontal suture from the antenna to the clypeus but little more than half as long as the distance between the antennæ. Clavus and corium dull leek-green, with more or less of the costal area, and a varying number of small irregular spots, milk-white, veins dark green; membrane milk-white, the second apical area and parts adjacent, with the veins, reddish-fuscous. Face, legs, and under-side pale green; spines of the hind tibiæ white. Abdomen above black, with the sides narrowly pale.

Length (including elytra), 5 mm.

I am indebted to Mr. E. A. Butler for the opportunity of recording this interesting addition to the British fauna; the specimens were taken by Mr. H. L. F. Guermonprez in August, 1901, at Pagham Harbour in S.W. Sussex, where old-established plants of *Tamarix*, the food-plant of the species, grow abundantly: it is a species of South European distribution, and doubtless introduced into this country with its food-plant. This insect has at various times been

treated as an *Athysanus* or *Thamnotettix*, but in the limitation of genera which I have adopted it falls readily into the genus *Limotettix*, J. Sahl., forming with *L. striola*, Fall., a section in that genus distinguished from the remaining species by having the crown broadly rounded in front, but little longer in the middle than at the sides, and about three times as broad as long. It has, however, no near ally amongst the British *Cicadina*, and though its distinctive features are mainly those of facies and colour-pattern, it would, perhaps, be better placed in a separate genus; in which case the name *Opsius*, Fieber, is available. It is probable that in life all the green parts of the insect are of the same tint as the elytra of the specimens before me.

Colesborne, Cheltenham :
July 30th, 1902.

LÆMOSTENUS COMPLANATUS, Dej., IN IRELAND: AN ADDITION
TO THE BRITISH FAUNA.

BY STANLEY W. KEMP, F.E.S.

When looking over a box of beetles which I had caught during a stay in Ireland, Mr. E. A. Waterhouse drew my attention to the fact that some specimens which I had taken to be *L. (Pristonychus) terricola*, Herbst, did not belong to that species. These, on further examination, proved to be *Læmostenus complanatus*, Dej., a species which I am thus pleased to add to the British list. This insect appears to have an extremely wide range, being recorded from S. France, Portugal, Italy, Barbary, Madeira, St. Helena, Bermuda, and Chili.

It is on the whole a smaller insect than *P. terricola*, the thorax is less contracted behind, and the elytra are more parallel-sided; there are wings under the elytra (*P. terricola* is apterous), and the legs are considerably shorter.

The specimens, some two dozen in number, were found under the stones of a fallen wall, on sandy soil near the sea, about three miles from Nelson's Pillar, Dublin, last June. I am indebted to Mr. E. A. Waterhouse for assistance in identification.

80, Oxford Gardens, Notting Hill, W. :
August, 1902.

[This S. European insect, which appears to be almost cosmopolitan, will probably be found mixed with *P. terricola* in British collections, as I find I have two of it from Chatham, captured by Mr. J. J. Walker in 1874. It is a common species at Gibraltar, and on

the opposite N. African coast, as well as in Algeria, &c. The generic name is often written *Læmosthenes*.—G. C. C.]

A NEW EUROPEAN SPECIES OF *PTEROPHORIDÆ*.

BY E. MEYRICK, B.A., F.Z.S.

In August, 1900, I spent a fortnight at Saas-Fée, in the Valais, Switzerland, which lies at an elevation of over 6000 feet, and carefully collected all the obtainable *Lepidoptera* from 5000 up to 9000 feet. Amongst them was the following species, which appears to be undescribed.

PLATYPTILIA LEUCORRHYNCHA, n. sp.

♀. 18-19 mm. Head white, mixed with whitish-ochreous, frontal tuft 1. Palpi 2½, whitish-ochreous, terminal joint long, tip white. Antennæ white, ringed with fuscous. Thorax whitish, mixed with light brownish-ochreous. Abdomen whitish, mixed with ochreous and fuscous. Legs white, banded with reddish-fuscous. Fore-wings formed as in *gonodactyla*, therefore more elongate than in *tesseradactyla*; ochreous-whitish, more ochreous-tinged towards base; costal edge fuscous-mixed from base to beyond middle; an outwardly oblique fuscous spot on dorsum at ¼, reaching half across wing; an undefined fuscous spot in disc just before middle; a narrow wedge-shaped fuscous spot along dorsum from before middle to ¾; a triangular dark brown blotch on costa before fissure, reaching ¾ across wing, outer edge slightly concave and less oblique than termen; a moderate dark brown subterminal fascia, and narrower brown terminal fascia, separated by a narrow streak of ground colour: cilia white, base on termen light brown edged with a dark fuscous line, on dorsum with a moderate projection of black-tipped scales at ¾, and a smaller one at ¼. Hind-wings rather dark fuscous, slightly reddish-tinged; cilia pale brownish, on dorsum whitish-mixed at base, with a large projection of black-tipped scales in middle, and two or three similar scales near base of wing.

Three specimens taken in a deep wooded gully below Saas-Fée in August, at 5300-5500 feet; amongst rough herbage in which a large *Senecio* and a *Petasites* grew luxuriantly, to one or other of which this species is probably attached. Most allied to *P. tesseradactyla*, with which it nearly corresponds in size, but more elongate-winged; agreeing also in the position and characters of the scale-projections of hind-wings, but certainly distinct by the much longer frontal tuft, a reliable character; the palpi are also much longer, and the dark costal blotch before fissure is quite differently formed; finally, the prominent development of the ochreous-white ground colour in the head and fore-wings distinguishes it at once superficially from this, and (combined with the small size) from all other European species of the genus.

Elmswood, Marlborough:
July 24th, 1902.

RHIZOTROGUS OCHRACEUS, KNOCH, CONFIRMED AS BRITISH.

BY DR. D. SHARP, M.A., F.R.S.

Mr. C. G. Lamb, the Dipterologist, while in Cornwall last month wrote me that a *Rhizotrogus* was flying there in the daytime. Knowing from continental experience that this is the habit of *R. ochraceus*, I asked him to bring two or three examples, thinking it just possible the Cornwall "dor" might prove to be this great rarity. He has accordingly kindly given me five specimens that are this much-wished-for beetle. Fowler says of it: "Very rare; Holyhead, Wales (Stevens and Brewer); one specimen recorded by Stephens from probably Derbyshire or Yorkshire."

In the Cornwall locality the insect is not uncommon, but we shall have to wait till another year for a supply of it. As already remarked it flies in the daytime. *R. solstitialis* is abundant in the same locality, and, as usual, flies in the evening. Probably any one finding a *Rhizotrogus* flying in the west at mid-day will be in possession of this insect.

Cambridge:

August 12th, 1902.

Bembidium argenteolum, Ahr., at Lough Neagh.—The circumstances of the discovery of *B. argenteolum*, together with a description of this interesting addition to our British *Coleoptera*, will be found in the List of the Beetles of Ireland compiled by Mr. J. N. Halbert and myself, and published in the Proceedings of the Royal Irish Academy, 3rd Series, vol. vi, No. 4.

I had not an opportunity of revisiting the place of its capture until last month, when Mrs. Johnson and I spent a day on the shores of Lough Neagh, and at Ardmore again met with the beetle. The day was dull and cloudy and the water very high, so that it was difficult to find it. After a good deal of work we managed to take a dozen. The beetles are found on sandy and shingly parts of the shore, and hide either just below the surface of the sand or under small stones. As soon as the sun shone out they began to emerge from their hiding places. Along with these *Bembidia* we took *Dyschirius obscurus*, *Pelophila borealis*, and *Silpha dispar*; insects were, however, very scarce.

There is a specimen of *Bembidium argenteolum* in the collection of the late Robert Patterson, F.R.S., of Belfast, which is labelled "Shane's Castle, 1831." It is interesting to note that seventy years afterwards, viz., in 1901, a grandson of this gentleman, also named Robert Patterson, should be the finder of another addition to the list of British *Coleoptera*, viz., *Stenus palposus*, Zett. (vide Johnson and Halbert's List of the Beetles of Ireland, p. 665), and that the discovery should also be made on the shore of Lough Neagh, though at a different part, near Toome.

B. argenteolum has also been taken by Mr. H. L. Orr, of Belfast, at Glenavy, Co. Antrim, on the eastern shore of Lough Neagh. This, with Mr. Kemp's record, points to the presence of the beetle in suitable places all round the lake.—W. F. JOHNSON, Acton Glebe, Poyntzpass: August 9th, 1902.

A Styloid attracted by light.—It might interest readers of the Ent. Mo. Mag. to know that I recently captured a male Styloid, at night, in an acetylene gas moth trap. It corresponds almost exactly to the figure of *Elenchus tenuicornis* (Westwood's Classification of Insects, vol. ii, p. 288, fig. 94—1).—E. ERNEST GREEN, Peradeniya, Ceylon: *July 28th*, 1902.

Coleoptera, &c., at Woking.—The following species have been captured here this summer in addition to those already recorded, *antea* p. 134:—*Anchomenus quadripunctatus*, one specimen running on a pine stump, May 31st; *Badister pellatus*, singly, in a damp place, not previously seen by me in this district; *Bembidium doris* and *B. obliquum*; *Homalota scapularis* and *Tachinus scapularis*, by sweeping; *Medon obsoletus*, on the wing; *Nitidula rufipes*, in dead bird; *Odonotæus mobilicornis*, one female example, captured on the wing in my garden by my son, June 21st; *Throscus carinifrons*, running on a pine stump in the evening, in company with *T. dermestoides*; *Telephorus thoracicus*; *Pissodes notatus*, three specimens, in two widely separated localities, May and June, a species apparently spreading in the pine woods here; *Ceuthorrhynchus setosus*; *Sitones cambricus*; *Alophus triguttatus*; *Stylops melittæ*, eighteen specimens captured on the wing in my garden, and others seen, May 24th, between 10 and 11 a.m., stylipised *Andrena Wilkella* occurring with them; *Corimelæna scarabæoides*; *Ceraleptus lividus*; *Spathocera Dalmani*, not previously seen by me in this district; *Corizus maculatus*; *Ploiaria culiciformis*, on the wing in my garden; *Ranatra linearis*, in the canal.—G. C. CHAMPION, Horsell, Woking: *August 13th*, 1902.

Coleoptera from East Kent.—In my record of *Coleoptera* from East Kent for last year (*antea* pp. 73–76) I omitted the following:—*Carabus monilis*, F., including the var. *consitus*, Panz., not uncommon in a little brick area sunk for the window of a cellar; *Ocypus similis*, F., *O. fuscatus*, Grav., *Euconus denticornis*, Müll., *Eutheia plicata*, Gyll., *Liodes humeralis*, F., and *Caliodes exiguus*, Ol. Also from the Blean Woods: *Plinthus caliginosus*, F., *Syntomium æneum*, Müll., *Clambus minutus*, Sturm, *C. armadillo*, De G., and *Acalles ptinoides* (3), the last mentioned from the purlieu of a nest of *Formica rufa*. This year I have been unable so far to find a single Coleopterous insect of any interest. I regret to say that my *Homœusa* locality has been destroyed. It was really an enormous heap of stones with which a small disused chalk pit had been filled, perhaps some hundreds of years ago. Unfortunately the owner discovered what it was about the same time as I did, the tons upon tons of stones were removed last winter to mend the roads, and ants' nests and beetles are no more.—A. J. CHITTY, 27, Hereford Square, S.W.: *June 20th*, 1902.

Otiorrhynchus blandus, Gyll., in the Isle of Man.—During a visit to the Isle of Man at the end of August, 1901, I met with a single specimen of this species on the Permian sandstone cliffs on the coast to the north of Peel.

During the present year, in April, May, June, and July, I have taken a total of fifteen specimens in the neighbourhood of Port Erin: the majority occurred under stones, at roots of grass, or crawling on pathways on low clay-slate cliffs at

Port Erin, Spaldrick Bay, Fleshwick, and Perwick; a few, however, were found under stones at Bradda Head, and at Ballanahow, at an altitude of between 300 and 400 feet.

Whilst on holiday visits to the island in August, 1899 and 1901, I collected up to the summits of several of the higher mountains, but never met with the species, and it may possibly be rather maritime than sub-alpine, so far as the Isle of Man is concerned.—J. HAROLD BAILEY, Port Erin, Isle of Man: *August 11th*, 1902.

Prionocyphon serricornis in *Epping Forest*.—On June 27th I had the good fortune to take a specimen of this rare beetle in Epping Forest between High Beech and Loughton, by sweeping in a damp place. I am informed by Mr. E. A. Newbery that Mr. Lewcock took a specimen in the same locality many years ago.—E. A. BUTLER, 53, Tollington Park, N.: *August*, 1902.

Cionus luctuosus, *Bohem.*, at *Tenerife*.—Among a number of beetles lately received from Tenerife were four specimens of this rather handsome little insect; it is not recorded by Wollaston, and there does not appear to be a specimen in the British Museum. Boheman's type was from Tenerife, and contained in Chevrolat's collection. Can any one give me any information as to recent captures?—E. A. ELLIOTT, 41, Holland Park, W.: *June 4th*, 1902.

Lycena Arion, &c., in *Cornwall*.—I am glad to be able to report that notwithstanding the burning of heath and gorse, and the enclosure and cultivation of many acres of wild land, where it was formerly common, this species appears to be as plentiful in some localities as it was in 1893 and 1896. It was satisfactory to find it in two or three new localities, in one of which I had "turned out" many females in 1896.

The range of the species is so extensive, and some of its haunts are so inaccessible, both for the farmer and the collector, that there does not appear to be any possibility of its extermination, although in some of its localities it must become rarer from the burning and cultivation of waste ground and from over collecting.

Amongst other species occurring in the same district may be mentioned—*Leucophasia sinapis*, *Arge Galathea*, *Satyrus Semele*, *Argynnis Aglaia* and *A. Selene*, *Sesia philanthiformis*, *Leucania littoralis*, and *Agrotis ripa*.—H. Goss, Housel Bay Hotel, The Lizard, Cornwall: *July*, 1902.

Note on Leucania favicolor, *Bartr.*.—This species, which I have not seen for several seasons, has, I am glad to say, put in an appearance again this year. Three were taken on July 4th, two at sugar and one flying to my lantern; these are remarkably fine typical examples, and could never be mistaken for anything else. Two more were taken on July 22nd on flowers of marram grass; they also are good specimens, although not quite so fine as those taken on the 4th. All these are males. I visited the locality several times between the dates mentioned, as I was anxious to obtain a female that I might try for eggs, but only saw one more, and this was too quick for me and flew off the sugar when I tried to box it. It is easily recognised, as it sits with its wings slightly raised, whereas *pallens* closes them tight and is

much more quiet. *Favicolor* is evidently a shy insect, and I nearly lost one of those captured on the 4th, as it fluttered off the sugared post into some long grass where I had some difficulty in finding it.—GERVASE F. MATHEW, Dovercourt: August 18th, 1902.

Lepidoptera in the New Forest in June, 1902.—Included among many others were *Vanessa polychloros*, larvæ on sallow; *Sphinx ligustri*, *Charocampa elpenor*, *Macroglossa fuciformis*, and *M. bombylifomis*, *Sesia formicaformis*, *Limacodes testudo*, *Nola cucullatella*, *N. strigula*, larvæ not uncommon, *Lithosia mesomella*, *L. aureola*, *L. quadra*, *L. rubricollis*, *Euthemonia russula*, *Halias prasinana*, *Chelonia villicæ*, *Liparis monacha*, *Pæcilocampa populi*, *Ellopie fasciaria*, *Amphydasis prodromaria*, *Cleora glabraria*, *C. lichenaria*, *Boarmia roboraria*, just getting out as we came away, *B. consortaria*, a few worn, and evidently almost over, *Tephrosia extersaria*, not uncommon; *Ephyra punctaria*, *E. omicronaria*, and others of the genus; *Aidalia trigeminata*, one of the commonest Geometers, the specimens large and in fine condition, and came more freely to sugar than any *Noctua* did! *Corycia temerata* and *C. taminata*, both common; *Macaria alternata*, a few at Matley Bog among alder; *Scodionia belgiaria*, the form much paler than the West Yorkshire moth; *Aspilates strigillaria*, plentiful; *Eupithecia rectangulata*, and others of the genus; *Collix sparsata*, we were a little surprised to find this a New Forest moth; *Diloba cæruleocephala*, *Thyatira batis*, *Cymatophora ridens*, larvæ, common; *Diphthera Orion*, a few at sugar; *Dipterygia pinastri*, *Rusina tenebrosa*, *Erastria fuscula*, common; *Trachea piniperda*, larvæ, common; *Taniocampa miniosa*, larvæ, common; *Aplecta herbida* and *A. nebulosa*, *Hydrelia unca*, Matley Bog; *Catocala promissa* and *C. sponsa*, larvæ; *Botys pandalis*, *Cryptoblabes bistriga*, *Crambus sylvellus*, common, &c. The fine stag beetle (*Lucanus cervus*) was very much in evidence all around Brockenhurst—one evening I picked up eleven in a few minutes; and *Hymenoptera* were well represented in the fine hornets which came freely to the sugared trees during the daytime, and up to almost dark.—GEO. T. PORRITT, Crosland Hall, Huddersfield: August 13th, 1902.

The British Museum Collection of British Lepidoptera.—The donations up to date have been as follows:—some living larvæ from Mr. Smallpiece of Ringwood, Hants; a pair of *Lycæna minima*, var. *alsoides*, from Mr. Piffard: these were taken on the coast near Lymington, Hants; a living pupa in cocoon, and three cocoons, from which the moths had emerged, of *Plusia moneta*, from Mr. Smallman. In addition to the above, Mr. Ed. H. Thornhill, Boxworth, Cambridge, has promised some larvæ, and the Rev. Joseph Greene will send a large collection of preserved pupæ.—G. F. HAMPSON, British Museum (Natural History), Cromwell Road, S.W.: August 15th, 1902.

The white variety of Dianthæcia carpophaga.—At the end of last May I obtained three specimens of the chalky-white variety of this insect, one being without the hind-marginal markings. They were taken on the sandhills on the Kentish Coast, and were all at rest on blades of marram grass, having presumably recently emerged.—PERCY C. REID, Feering Bury, Kelvedon: July, 1902.

The habits of Nyssia lapponaria.—My friend Dr. McCallum, J.P., of Kinloch Rannoch, has this year had the probably unique experience of capturing this insect in its wild imaginal state. It is excessively local, being found, for instance, on a spot of about an acre in extent, and limited entirely to that area, although the surrounding moorland may be of exactly the same type and character. It apparently flies but little (by day at all events), as only one specimen was seen on the wing. Its usual habit is to sit on the heather, where it will remain *in cop.* for hours together. Generally it is found on the bell heather (*Erica*), though sometimes on the common ling, and occasionally on a birch tree. The female lays her eggs by inserting her ovipositor into the dead flower tubes of the bell heather, which she fills with eggs, or into the crevices of the bark of the birch tree. The eggs hatch towards the end of May, and the larvæ are full fed about the end of July.—ID.

Luperina testacea, Hb., at treacle.—Of the habits of *Luperina testacea*, Mr. C. G. Barrett, in Brit. Lep., iv, 337, writes as follows:—"At dusk it flies swiftly about fields, lanes, and grassy places generally, but is never found at sugar, nor known to feed at flowers or any kind of sweets." Since it is "the exception" that "proves the rule," it may be of interest to put on record two or three exceptions to the latter part of Mr. Barrett's statement that have recently come under my personal observation. During the last two years, while "sugaring" on the South Devon coast in August and September, I have not unfrequently found specimens of *L. testacea* sitting rather near the treacle patches, but taking no notice of them. In these cases, no doubt, the moths happen by chance to have crawled up on to what seemed to them to be convenient resting places. The same excuse, however, cannot be made for all the individuals noticed under more suspicious circumstances, for on September 2nd, 1900, I saw and watched, with much interest, a male and a female, and on September 6th, 1901, another female, which were all three engaged in eagerly *sucking up the treacle* through their outstretched tongues. How far they had been attracted to the spot by the sweets it is impossible to say, but the above instances clearly prove, at any rate, that if the sweets happen to come in their way they are, if so inclined, fully capable of enjoying them. The powerful attraction that artificial light has for *L. testacea*, more especially for the males, is probably well known: the females are in general very lethargic, merely crawling out of their hiding places at night, and sitting quietly about on grass stems, posts, &c., though under favourable conditions of weather I have before now taken them at electric light in a first floor room.—EUSTACE R. BANKES, Norden, Corfe Castle: *July 10th*, 1902.

Captures of Lepidoptera in Wilts.—Although the wet and cold spring greatly retarded the appearance of some species (in some instances by as much as from thirty to forty days), I do not find that there is any scarcity of *Lepidoptera* this season, when proper search is made for them. Amongst recent captures in this district were the following local species, some indicating an extension of the known geographical range.

Senta maritima.—In a marsh on the Kennet near Chilton Foliat I took a fresh

specimen by searching at the base of the reeds. From a pupa found lying on the mud at the same time I bred *Leucania impudens*. In this same marsh *L. straminea* is common, and this year Mr. R. M. Maxwell has met with *L. obsoleta* there.

Plusia moneta.—The spread of this insect into our district has been plainly traceable. In 1896 an example was taken in the neighbouring valley of Pewsey, but the species was not observed here until 1899; since then it has been taken each year, and this summer larvæ were found and reared.

Nepticula filipendulæ.—In the marsh above-mentioned I captured a specimen which I refer to this species from amongst *Spiræa ulmaria*, on which I imagine it fed. I also took there *Nepticula apicella*, but I believe *Populus tremula* is absent from the locality, though *P. nigra* occurs.

Nepticula cryptella.—I swept this up from a bank near All Cannings, in the Devizes district.

Raslerstammia Erzelella.—I have long been on the look out for this species; this year a specimen was taken near Bedwyn by H. W. Daltry, one of the College collectors.—E. MAYRICK, Elmswood, Marlborough: July 20th, 1902.

Ceropales variegatus, Fab., at Woking.—I was very pleased to meet yesterday with a beautiful female of this rare Aculeate (the first specimen of it I ever took in England), quite near to my own house. It occurred on the wild carrot, in a large field where I have made other good captures (*Calicurgus hyalinatus*, *Prosopeis cornuta* and *dilatata*, &c.), but which, I regret to say, is rapidly being swallowed up by villa-building. Just now it is an ideal collecting ground; but I fear that, in that respect, its days are numbered.—F. D. MORICE, Woking: August 6th, 1902.

Hymenoptera near Hayward's Heath, Sussex.—During a visit at the end of July last to friends residing temporarily in the above neighbourhood, I made one or two brief excursions—rather at random, as I did not know the district at all—in search of *Hymenoptera*. None of these expeditions lasted much over an hour or so, and the weather was generally rather dull and cold; yet I came across several species which seem worth recording, and I imagine that under more favourable conditions the locality would repay a longer and more serious exploration.

The following were among my captures:—*Odynerus lavipes*, Shuck., ♀; *Prosopeis cornuta*, Smith, ♂ ♀; *dilatata*, Kirb., ♂ ♀; *Sphecodes longulus*, v. Hag., ♀; *Halictus paucillus*, Schenck, ♀; *Osmia leucomelana*, Kirb., ♀; *Anthidium manicatum*, Linn., ♂. I took also a ♂ of *Prosopeis brevicornis*, Nyl., with a very oddly coloured clypeus, black on one side and white on the other, but with its other characters (including the armature) those, as far as I could see, of a normal male.

Afterwards, cycling home to Woking, I met with *H. paucillus* again, a mile or two north-west of Horsham; and also, at the same spot, with both sexes of *Halictus lavigatus*, Kirb.—ID.

Wasps in Ireland and Berkshire: a specific comparison.—Messrs. Barrington and Moffat published last year in the Irish Naturalist (vol. x, October, p. 197, et seq.) an interesting account of the queen wasps killed at Fassaroe during the

years 1893 to 1901, giving a table showing the number of specimens of each species, and the proportion this number bore to the total number killed.

Another correspondent, Mr. Robert T. Pritchett, has for the last two years sent me the queen wasps killed in his neighbourhood (Burghfield and Sulhampstead, near Reading) in response to an offer of a prize for the greatest number killed. The proportions in which the various species occur in the Berkshire locality are so different to those in the Irish that I think a comparison of them may be of interest.

Of the 1155 specimens from Fassaroe 588 were *vulgaris*, 207 *sylvestris*, 119 *rufa*, 115 *germanica*, 109 *norvegica*, and 17 *austriaca*.

Of the 334 from Burghfield, &c., 228 were *germanica*, 56 *rufa*, 45 *vulgaris*, 5 *sylvestris* (*norvegica* and *austriaca* not being represented).

The comparative percentages of the various species are accordingly—

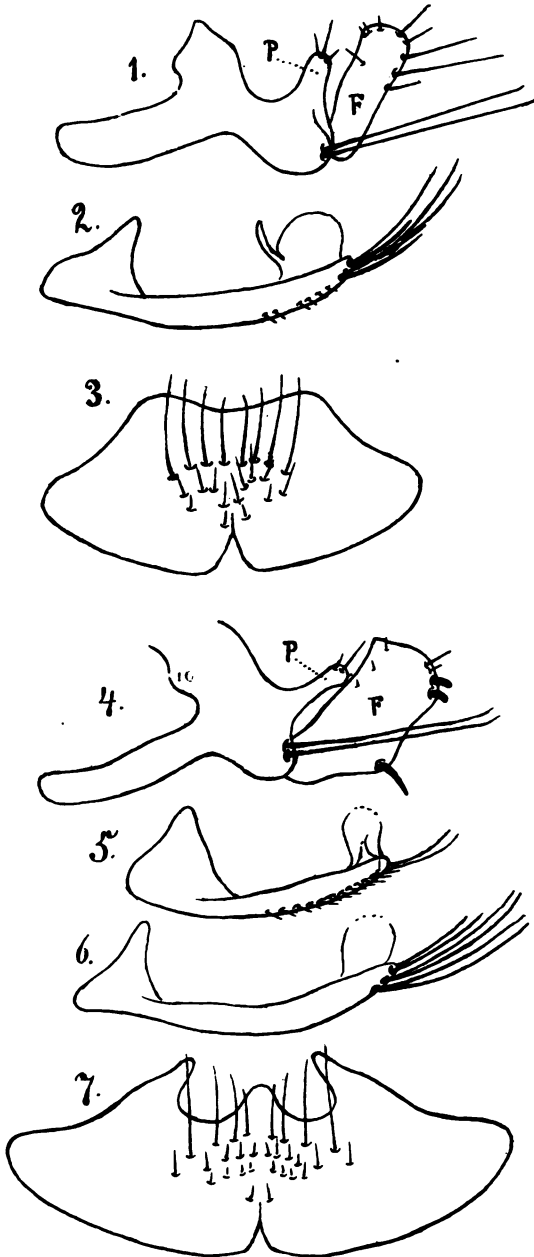
<i>vulgaris</i>	50.9	at Fassaroe,	13.5	at Burghfield.
<i>germanica</i>	10.0	„ „	68.3	„ „
<i>rufa</i>	10.3	„ „	16.7	„ „
<i>sylvestris</i>	17.9	„ „	1.5	„ „
<i>norvegica</i>	9.4	„ „	0.0	„ „
<i>austriaca</i>	1.5	„ „	0.0	„ „

showing an extraordinary preponderance of *vulgaris* in the Irish locality, and of *germanica* in the English; *sylvestris* also has a much higher percentage at Fassaroe.

It would be of great interest to get data on this subject from other places, and I should be grateful to any one who offers rewards for queen wasps if he would send me the specimens collected, so that the proportions of the species in the locality can be determined.—EDWARD SAUNDERS, St. Ann's, Woking: August 8th, 1902.

P.S.—Since writing the above, Mr. Dennis Pack Beresford, of Bagenalstown, has kindly sent me the particulars of the queen wasps captured by him this spring during a stay in Northamptonshire. These are very similar in proportions to the Berkshire records, viz., *germanica*, 44, *vulgaris*, 3, *rufa*, 3, *sylvestris*, 6, but *germanica* is even in larger preponderance.—E. S.

A melanic aberration of Miris lævigatus, L.—On August 25th, 1901, I captured by sweeping in some waste ground at Bickley, Kent, a dark Capsid possessing the shape of a *Miris*, which Mr. Saunders, to whom I submitted the specimen, at first thought might possibly be something new to our list; he, however, has been unable to refer it to any other species than *M. lævigatus*. The specimen, nevertheless, seems worth recording, as it is so very different in coloration to ordinary specimens of any of the species of *Miris* or *Megalocera*; it has the head, thorax, and scutellum, the elytra down to the base of the membrane, the two lower joints of the antennæ, together with the legs, dull black, while the apical portions of the elytra, and the 3rd and 4th joints of the antennæ, are brownish, the membrane smoky-brown. I do not know of any previous record of a similarly coloured specimen in either of the genera mentioned.—F. B. JENNINGS, 152, Silver Street, Upper Edmonton, N.: August 14th, 1902.



NEW BRITISH FLEAS.

NEW BRITISH FLEAS (PLATE IV).

BY THE HON. N. CHARLES ROTHSCHILD, B.A., F.L.S.

CERATOPHYLLUS GAREI, *sp. nov.*, Pl. iv, figs. 1—3.

Closely allied to *C. gallinae*, Schrank, from which species it can be easily distinguished by the form of the eighth sternite in the ♂ (fig. 2), and by that of the seventh sternite in the ♀ (fig. 3). The prothoracic comb consists of twenty-six teeth.

Length, 2·5 mm.

Ten specimens of this species were secured from the nest of a waterhen (*Gallinula chloropus*) in July last near Tring. The late Mr. E. C. Rye* mentions a flea as occurring on the waterhen, but we have failed to find any description of it. The present species is named in honour of Mr. George Gare, of Wembdon, Bridgwater, who has done much to further the knowledge of the fleas parasitic on birds.

CERATOPHYLLUS WALKERI, *sp. nov.*, Pl. iv, figs. 4, 5, 7.

Closely allied to *C. lagomys*, Wagner, a non-British species, under which name it was recorded on *our* identification in Verrall's list of British *Diptera* (last edition). Since the publication of that work, however, we have received typical examples of *C. lagomys* from Dr. Wagner, and are now able to decide that the present species is abundantly distinct. The type specimen (♂ the present species was forwarded to us by Mr. J. J. Walker, who found it in a deserted mouse nest in March, 1898, at Chattenden in Kent. We have, however, received subsequently other specimens from *Mustela erminea* and *M. vulgaris* (Tring), *Sorex vulgaris* (Bevandean, Sussex), *Microtus glareolus* (Tring and Oundle), *Microtus amphibius* (Tring), and "Hedge clippings" (Chesham).

C. Walkeri is a very dark species, measuring 3 mm. in length. The prothoracic comb consists of eighteen teeth. The ninth tergite of the ♂ is drawn in fig. 4. The eighth tergite of the ♂ is shown in fig. 5, and is readily distinguished from that of *C. lagomys*, Wagner, fig. 6 inserted for comparison. The seventh sternite of the ♀ (fig. 7) is deeply sinuate, somewhat resembling that of *C. Newsteadi*.

EXPLANATION OF PLATE IV.

- Fig. 1—*Ceratophyllus Garei*..... ♂9th tergite.
 " 2— " " ♂8th sternite.
 " 3— " " ♀7th "
 " 4—*Ceratophyllus Walkeri*..... ♂9th tergite.
 " 5— " " ♂8th sternite.
 " 6—*Ceratophyllus lagomys*..... ♂8th "
 " 7—*Ceratophyllus Walkeri*..... ♀7th "

Tring Park, Tring: September, 1902.

* Encyclopædia Britannica, 9th edition, vol. ix, p. 301, 1879.

NOTE UPON *MASICERA VIRILIS*, RDI.

BY C. J. WAINWRIGHT, F.E.S.

In the Ent. Mo. Mag. for May, 1902, pp. 108—9, is a double reference to this species. In the first place, Mr. C. W. Dale enquires why it was omitted from Mr. G. H. Verrall's recent list of British *Diptera*; and in the second place, Mr. Verrall replies that he omitted it because he had no idea what species Meade intended by the name. It will perhaps be instructive if I record what I know with regard to it, as everything which assists in clearing up the tangle existing in the nomenclature, &c., of the *Tachinidæ* is a gain, and, moreover, it will perhaps serve as a warning of the necessity for the extremest caution in dealing with records of species in this family wherever they may occur.

In 1898 I found in the New Forest, occurring in considerable numbers with *Aporomyia dubia*, Fln., and *Bothria cæsifrons*, Mcq., a species which I could make nothing of. As I utterly failed to run it down to anything I then knew, I sent a series on to Dr. Meade, with other *Tachinidæ*, for his opinion. He returned them to me as *Degeeria ornata*, Meig., retaining a pair for himself. I saw at once that they were not *ornata*, Meig., and, moreover, that he had added to the series under the same name three specimens of a distinct species which I had also sent him, which is a true *Degeeria*, and might have been *ornata*. I therefore wrote to him at once pointing out that he had mixed up two species, and that though the three specimens might be *D. ornata*, Mg., the remainder certainly could not be, and I suggested that perhaps if they belonged to the genus *Degeeria* they might be what he called in his Synopsis *Degeeria muscaria*, Fln. He replied that he had re-examined the specimens he had retained, and that I was quite right, they were *muscaria*.

At this time I did not possess Brauer and von Bergenstamm's work, and other necessary books, so that I could test the matter no further, and they went into my collection as *muscaria*, and many were distributed under that name. In 1899 I found it equally abundant at West Hide, in Herefordshire, and have no doubt that it is a common British species.

Recently, Dr. J. H. Wood, of Tarrington, near Hereford, sent me some specimens from his district, including some which he called *Masicera virilis*, Rdi., and which he said had been so named for him by Dr. Meade. I immediately recognised my old friend the so-called *D.*

muscaria, and as I had long since come to the conclusion that the identification of the species was doubtful, I determined to work it out thoroughly, and see what it really was. After much trouble I at last ran it down to *Ceromasia Wulpïi*, B. and B., and have little doubt that it is that species, and that *M. virilis*, Rdi., is distinct, though probably a near ally.

Mr. R. C. Bradley took some of the same species in the New Forest when I did, in 1898, and also like myself sent some of them to Dr. Meade for identification; they were returned to him as *M. virilis*, Rdi. At the same time he worked the species out himself, using Meade's tables, and ran it down by them also to *M. virilis*. It really seems probable, therefore, that this species which I believe to be *C. Wulpïi*, B. and B., is the one Meade knew and recorded as *M. virilis*, though the fact that specimens of *Wulpïi* were also called by him on one occasion *Degeeria muscaria*, and even *D. ornata*, makes it uncertain; and, of course, *M. virilis*, Rdi., may also occur, and the two species not have been distinguished from one another.

To make quite certain of my own identification of the species, I sent a pair on to Prof. Brauer for his confirmation. In Prof. Brauer's absence Mr. S. Bischof examined them and returned them as "*Ceromasia Wulpïi*, B. and B., = n. g., or *Vibrissina Wulpïi*, B. and B., = *sordidiquama*, Ztt." This is not too definite, and one is not assisted by the further information which Mr. Bischof gave me about another specimen which belongs to an entirely different species, probably undescribed, which he labelled for me as "n. g., or *Vibrissina*, n. sp., or *Ceromasia sordidiquama*, Ztt." They cannot both be *sordidiquama*, Ztt., so that even after going to head quarters the matter is not settled.

It seems certain, however, at any rate, that the species under discussion is the one B. and B. described as *Ceromasia Wulpïi*, B. and B., even if that name should have to be sunk as a synonym of *sordidiquama*, Zett., or something else, that species is a common British one, and must come into our lists accordingly; and that probably *virilis*, Meade, and possibly even *muscaria*, Meade, are synonyms, so that Rondani's *virilis*, and Fallén's *muscaria* are neither of them British, or at all events require further confirmation before we can regard them as such.

2, Handsworth Wood Road,
Handsworth, Birmingham :
September, 1902.

ON A DISTINCTIVE CHARACTER OF THE IMAGOS OF THE SUBORDERS OF DIPTERA: *ORTHORRHAPHA BRACHYCERA* AND *CYCLORRHAPHA ATHERICERA*, INTRODUCED BY LATREILLE (1825), BUT OVERLOOKED BY LATER AUTHORS.

BY C. R. OSTEN SACKEN, PH.D., HON. F.E.S.

Latreille (Familles Naturelles, 1825, p. 486) defines the mouth parts of the *Orthorrhapha Brachycera* (a compound of his Fam. II, *Tanystoma*, and Fam. III, *Notacantha*) as follows:—

"1.—Ici, le suçoir et les palpes sont insérés très près de l'origine de la trompe, à l'entrée de la cavité buccale; cette trompe, ou du moins les lèvres, forment ordinairement une saillie hors de la cavité."

The corresponding passage, concerning the *Cyclorrhapha Athericera* (Latreille's Fam. IV, *Athericera*) is found in the middle of p. 494, and runs as follows:—

"2.—Dans les autres Diptères, le suçoir et les palpes sont insérés à une distance notable de la cavité buccale, près du coude de la trompe, qui est entièrement retirée dans cette cavité, ou saillante, et en forme de siphon, mais dont le suçoir n'est jamais alors composé que de deux pièces."

The dipterologists of the second half of the XIXth century have too much neglected the publications on *Diptera* of the great Latreille. In my paper, "On the characters of the three divisions," etc. (Berl. Ent. Z., 1892) I have shown (on pp. 421 and 422) that Loew, Brauer and other entomologists had considered *the number of the joints of the antennæ* as the only character separating the *Nemocera* from the *Brachycera*; they were quite prepared to give up these Suborders when *Rhachicerus*, the multiarticulate genus of *Brachycera*, was discovered, and when it was noticed at the same time that other genera of *Brachycera*, as *Xylophagus*, *Subula* and *Cænomyia** also had multiarticulate antennæ. Brauer especially was most emphatic in this sense. He said, "Mögen die Dipterologen, der Bequemlichkeit wegen, auch heute noch von *Nemoceren* und *Brachyceren* sprechen, derlei natürliche Gruppen giebt es nicht, und man ist auch nicht im Stande natürliche Charactere für sie aufzustellen" (Brauer, Zweifl. d. K. Mus. Wien, iii, p. 9, 1883).

I pointed out in my above quoted paper of 1892 (on pp. 419-20)

* I am thoroughly convinced that *Caenomyia*, and not the commonly used form *Coenomyia*, is the right spelling of this generic name. My reasons are:—1°. It is quite distinctly spelt *Caenomyia* in Latreille's principal work, *Genera*, &c., 1809, vol. iv, p. 280; 2°. Its derivation from the Greek *καὶνός*, new, extraordinary, is much more probable, and more appropriate to this very peculiar Dipteran, than that of *κοινός*, common, ordinary. The mis-spelling *Coenomyia*, as it occurs everywhere, even in Latreille's other works (*Précis*, 1796: *Fam. Natur.*, 1825), is merely due to the confusion of *ae* and *oe* in print, easily overlooked by proof readers.

that Latreille had founded his subdivision *Nemocera* not only on the number of the joints of the antennæ, but also on that of the *palpi*. Macquart adopted this same characterization when he proposed the name *Brachycera* for the rest of the *Orthorrhapha* (see *l. c.* p. 420, at top).

It is owing to the same neglect of the study of Latreille that the dipterologists of the second half of the last century were never able to discover a satisfactory distinctive character for separating the *imago*s of the *Orthorrhapha Brachycera* from those of the *Cyclorrhapha Athericera*, in spite of the fact that the contrast between their *early stages* is self-evident and undoubted. This distinctive character had, nevertheless, been indicated by Latreille in his "Familles Naturelles" of 1825 in the passages reproduced above by me, passages which merely need development. My lack of skill in dissecting and drawing prevented me from undertaking this task which requires both these accomplishments.

Brauer, in the Introduction to his very ambitious new "System of *Diptera*" (Zweifl. d. K. Mus. Wien, i, 1880, p. 3, about the middle) makes a vague allusion to these passages of Latreille, but he has not understood how to profit by them. He merely says, "Latreille, Fam. Nat., 1825, hat auf die Bildung des Rüssels und seiner Theile ein besonderes Gewicht gelegt, doch müssen zu ausgedehnterer Verwerthung noch mehr Untersuchungen vorgenommen werden." Brauer, a trained zoologist and skilful draughtsman (both of which I am not), intent as he was on reforming the whole System of *Diptera*, should have investigated the purport of these important passages of Latreille, instead of recommending this investigation to others!

May this, my unpretending notice, call the attention of trained entomologists to such an investigation, which is indispensable for a satisfactory and final definition of the three Suborders of *Diptera*!

Heidelberg: August 26th, 1902.

ON THE VARIATION AND HABITS OF *LITHOSIA DEPLANA*, Esp.

BY EUSTACE R. BANKES, M.A., F.E.S.

When treating of the variation shown by *Lithosia deplana*, Esp., Mr. C. G. Barrett, in Lep. Brit. Isles, ii, p. 215, describes (under the name *helveola*, Ochs.) two forms of the female, of which the more usual has the "general colour more slate-grey (*i. e.*, than that of the male), with a softening of yellowish; hind-wings yellow-grey, hardly

greyer at the margins ; cilia paler," while the other is "wholly dark grey, except a broad ochreous costal stripe to the fore-wings." I have lately been fortunate in securing, in the Isle of Purbeck, a fine series of *L. deplana*, and among the females are several examples of a fine extreme variety, not referred to by Mr. Barrett, together with various intermediate forms between it and the opposite extreme, which he describes as "wholly dark grey, except a broad ochreous costal stripe to the fore-wings." The variety in question has the fore-wings wholly rich orange-buff, without any tinge of grey, and with the whole costal margin, and the cilia, exactly concolorous with the rest of the wing, while the hind-wings are pale orange-buff tinged with grey, especially near the inner margin, and have orange-buff cilia. In colour the fore-wings closely resemble those of *L. sororcula*, Hufn. (= *aureola*, Hb.), but are not quite so brightly orange. Is this the form of the female that Hübner figured (fig. 96) under the name *ochreola*? I have not his work at hand to refer to.

The male of *L. deplana* does not show nearly so wide a range of variation as the female, though the ground colour varies considerably from rich grey-drab in the darkest, to cream-buff, tinged with grey, in the palest, individuals.

The imago, even when disturbed, is extremely sluggish by day, when it may be beaten from the branches of pine, especially those of Scotch fir (*Pinus sylvestris*), and generally falls straight down, only spreading its wings to assist it in alighting on the ground, where it then sits motionless. On fine calm evenings the males begin to come on the wing, in shady spots, about 15 or 20 minutes after sunset, and continue flying till dark, and probably later : their flight is remarkably swift and unsteady, surprisingly so for that of a *Lithosia*, and the majority of those I have seen on the wing have been flying about the tops of young fir trees, some 20-25 feet high, and quite out of reach. So far as I am aware, I have only seen one female, which was flying at about 8.30 p.m., on the wing." One pair was observed *in cop.* at about 8.15 p.m. on July 21st: the female was clinging to a "needle" of Scotch fir, head upwards, while the male was hanging, suspended from her in mid air, head downwards. I have little doubt that they had remained paired since the previous night, or very early morning, for, when captured, it was rather too early and too light for them to have begun pairing that same evening, since their flight time had hardly arrived.

Norden, Corfe Castle :

August 14th, 1902.

NOTES ON THE LARVÆ OF *EUPITHECIA DODONEATA*.

BY GERVASE F. MATHEW, PAYMASTER-IN-CHIEF, ROYAL NAVY, F.L.S., F.E.S.

On May 16th, 1894, and after, I took several *Eupithecia dodoneata* at rest on some match-board palings surrounding private grounds in this neighbourhood. It was a species I had not met with before, and not being quite certain what they were I sent some of them to Mr. Barrett, who kindly furnished me with their correct name, and advised me to look for their larvæ upon oak and whitethorn. However, there was no oak (*robur*) growing in the grounds, and very little whitethorn; but there were some whitethorn hedges not far off, where I thought the moths might have been bred. In the grounds there were the usual ornamental shrubs, together with several fine old evergreen oak trees (*ilex*), sycamores, poplars, spruce firs, ash, &c. In 1895 the moths did not appear until May 24th, and after, but I did not see as many as in the previous year. In 1896 I did not see any. During 1897-8 I was abroad. In 1899 I did not see one. In 1900 I took several, the first on May 22nd. None were met with in 1901. This year I noticed the first on May 30th. As the moths so far had only been found on these particular palings, and were never seen on other palings not far off and adjacent to the whitethorn hedges, I had come to the conclusion that the larvæ must feed on something else besides oak and whitethorn, so I obtained permission to collect in the private grounds, and on May 30th, the first day I saw one on the outside palings, I took twenty-seven, a few on the palings inside, but most on the *ilex* trees, and a few of them were already worn, showing that they had been out for some time. Between this date and June 12th I took about a hundred, and could have obtained double the number had I wished. Nearly all these were found on the *ilex* trees, some of them sitting low down on the trunks, just emerged, with their wings limp over their backs, and hardly grown, though the greater number were usually high up on the branches, and had to be taken in a net as they flew off. I had now no doubt, and had long suspected that *ilex* was the food of the larvæ in this particular locality. Two or three of the worn females were enclosed in a glass cylinder, with small twigs of *ilex*, whereon a number of eggs were soon deposited among the clusters of flower buds. These at first were of a pale straw colour, but changed to a bright orange in a day or two, and hatched in about ten days. The larvæ feed almost exclusively upon the flower-buds and bloom, and when the latter wither

they continue to feed upon them in preference to the tender young leaves. In confinement they occasionally nibbled the young leaves, but did not appear to do so in a wild state.

On June 28th the ilex was well out in bloom, and I beat some of the lower branches and obtained a few larvæ, but as they were still small I left them and tried again on July 9th and 12th, by which time a large proportion of them had become full grown. When beating such a shower of dead leaves, withered bloom and dust fell into the umbrella, that it was difficult to see the larvæ, and I had to wait some minutes until they began to move about, when they were more easily detected. I fancy a great many larvæ fall to the ground with the withered flowers, and continue to feed up in that situation, for I noticed them on several occasions amongst the fallen leaves, &c., under trees I had not previously beaten.

These larvæ vary excessively, and besides obtaining examples similar to the three figured on plate cxxxv of Vol. viii of Buckler's *Larvæ of British Butterflies and Moths*, I took some of a uniform pale lemon-yellow (something like var. ii of the Rev. Harpur Crewe), and others of a clear umber-brown with scarcely a trace of any markings.

Mr. Crewe states that many of his larvæ died when full-fed. I did not notice any mortality among mine—some two hundred—they appeared to be a very healthy lot, and all disappeared below ground to change to pupæ, but whether they are easy to rear or not I shall be better able to judge next year.

In addition to the larvæ of *E. dodoneata* the beating stick brought down a fair number of those of *Hibernia progemmata*, *Teniocampa stabilis*, and *Cosmia trapezina*.

Dovercourt : September 15th, 1902.

ON SOME PARASITES OF *XYLOCOPA TENUISCAPA*, WESTW.

BY E. ERNEST GREEN, F.E.S., GOVERNMENT ENTOMOLOGIST, CEYLON.

On recently opening up a dead tree extensively tunnelled by *Xylocopa tenuiscapa*, I found the galleries infested by numerous examples of the large red Meloid beetle, *Cissites Debeyi*, Fairm., in all stages. It is said that in Europe beetles of this family deposit their eggs on, or in, the ground, and that the young triungulin larvæ attach themselves to some passing bee by which they are introduced into the nest where they undergo their remarkable hyper-metamorphosis. In

the case of *C. Debeyi* this procedure does not appear to be carried out. I found masses of the eggs actually in the galleries of the bee, all hatching out into the characteristic triungulins. The eggs were deposited at the ends of the galleries, and each mass must have contained several thousand individuals. The full grown larvæ of the beetle excavate for themselves offshoots from the tunnels of the bee, of a much smaller diameter and an inch or more in length, in which they pupate. The fact that the young larvæ are hatched inside the nest of the bee, suggests that at least some of them may pass their whole larval existence on the spot; but they are produced in such vast numbers that for most of them a migration must be necessary. They are doubtless unconsciously transported to fresh colonies by the bees themselves. I have frequently captured specimens of *Xylocopa* bearing examples of the triungulins attached to their hairy legs. On one occasion I found a single triungulin on the stamens of a large blue *Thunbergia*, the blossoms of which are frequented by the *Xylocopa*. It is noticeable that the male bees are more constantly utilized by the triungulins than the females.

The galleries of the bee were carefully searched for other stages of the Acarid parasite, *Greenia Parkinsi*, Oudemans. Half a dozen full sized examples were found wandering in the galleries. These very closely resembled the nymphs found in the remarkable abdominal pouch of the female *Xylocopa*, but had a rather larger chitinous dorsal plate. I have submitted specimens to Dr. Oudemans, the author of the name of the parasite ("Tijdschr. d. Ned. Dierk. Vereen" [2], Dl. vii, Afl., 3).

The nests were also infested by many tiny mites, possibly an early stage of the *Greenia*.

I may mention that I have found examples of *Greenia Parkinsi* in similar abdominal pouches, in the allied bee, *Xylocopa bryorum*, Fabr.

As, to the best of my belief, no figure of the interesting abdominal pouch of *Xylocopa* has been published, I append a sketch of a longitudino-vertical section through the bee, which shows the bisected pouch at the base of the abdomen, just below the dorsum.



Peradeniya, Ceylon :

August, 1902.

A SECOND AFRICAN SPECIES OF *PSYCHOPSIS*: *PS. MARSHALLI*,
McLACH.

BY ROBERT McLACHLAN, F.R.S., &c.

PSYCHOPSIS MARSHALLI, *n. sp.*

♂. Body more or less fuscous in the dry insect (yellowish beneath), clothed with long cinereous hairs mixed with blackish; antennæ brownish, usually more yellowish towards the base; head mixed with yellowish above, face yellow. Pronotum narrowed anteriorly, with four large yellow spots (of which the two hinder are round and raised), and a yellow median line. Legs dingy yellowish; tarsi somewhat darker; tibial spurs moderate. Abdomen sometimes yellowish above, more so beneath: apical parts yellow, clothed with long concolorous hairs; there is a pair of large superior valves (or claspers), nearly contiguous at the base and there somewhat swollen if viewed from above, convex externally and concave internally, the basal portion dilated but narrowing gradually to the semi-obtuse apex which is incurved, on the lower edge is a dilatation or angulation which is often brownish; the infra-anal plate (or last ventral segment) is large and subquadrate, slightly excised on its margin; internally there are probably two plates, lying one on the other, the upper longer and emarginate at its tip, and between them a slender straight piceous spine (penis?), but the definition is vague in dry examples.

Wings whitish-grey: in the anterior pair are dark grey spots and irrorations, the larger spots almost blackish and arranged somewhat vaguely in 3-5 oblique fasciæ; the apical edge narrowly blackish (caused by the short ciliæ), interrupted with pale; the membrane with slight pinkish iridescence (common to both pairs); neuration mostly pale, with dark interruptions, the gradate nervules nearly blackish, a space on each side of the ultra-median vague fascia wholly pale; hairs of the neuration long, blackish, and erect; costal margin abruptly dilated at its base, the costal area with a line of gradate nervules, which is nearer the costa at its commencement, but gradually becomes nearer the subcosta, costal nervules simply furcate (rarely ending in three branches); two series of discal gradate nervules, viz., the 1st and 3rd. Posterior wings without markings and with pale neuration, but the edge is blackish and interrupted as in the anterior, sometimes forming vague indications of costal and apical spots: gradate nervules in costal area variable, sometimes absent or limited to one or two basal cellules, sometimes extending half-way above the subcosta, and sometimes practically to the junction of the subcosta and radius; two series of discal gradate nervules, the 1st and 3rd.

Length of body, 10-13 mm. Expanse of wings, 33-39 mm.; length of anterior wing, 16-19 mm.

Hab.: Salisbury, Mashonaland (*G. A. K. Marshall*, No. 11), January and February, 1900, 7 examples, all ♂; my collection.

I have much pleasure in naming this species after Mr. Guy A. K. Marshall, F.E.S., who has done so much towards elucidating the insect fauna of British Central South Africa, especially from a philosophical standpoint, and to whom I am much indebted for a fine collection of *Neuroptera* from that district. *Ps. Marshalli* in

point of size and markings bears some resemblance to the Australian *Ps. Meyricki*, McLach., and *Ps. insolens*, McLach.: as in the other extra-Australian species the rounded subapical spot in the posterior wings is wanting.

The other African species, *Ps. zebra*, Brauer, is very different, being almost without markings, save faint zebrate lines. It was originally described from Kilimanjaro; I have it now from Mashonaland (*Marshall*), Uganda, and Teita (2500–3000 ft., *Jackson*). Kolbe (*Neurop. Deutsch-Ost-Afrikas*, p. 34) records it from Zanzibar (*Fischer*) and Delagoa Bay (*Monteiro*), the latter somewhat varying. In all my examples of *Ps. zebra* I find only three rows of discal gradate nervules (as recorded by Gerstäcker), which, according to the plan indicated by me at p. 321, *Ent. Mo. Mag.*, 1891, should be the 1st, 3rd and 4th. In *Ps. zebra* there is a minute black dot at the junction of the subcosta and radius in both pairs of wings, but it is scarcely an analogue of the large subapical spot in the posterior wings of the Australian forms.

The described species of *Psychopsis* are now as follows:—

AUSTRALIA.—*Ps. mimica*, Newm.; *elegans*, Guérin; *cælivaga*, Walk.; *insolens*, McLach.; *Meyricki*, McLach.

ASIA.—*Ps. birmana*, McLach.

AFRICA.—*Ps. zebra*, Brauer; *Marshalli*, McLach.

Lewisham, London:

August 17th, 1902.

A SMALL CONTRIBUTION TOWARDS A KNOWLEDGE OF THE NEUROPTEROUS FAUNA OF EASTERN SOUTH DEVON.

BY ROBERT McLACHLAN, F.R.S., &c.

The tendency at the present day amongst British Entomologists is towards minute localization, both in recording and labelling. In former times very few took the trouble to place a locality label on any insect. Some, as was the case with me, until recently (so far as British *Neuroptera*, &c., were concerned), used a label with a No. referring to entries in a register, a short-sighted proceeding, inasmuch as the ultimate distributions of the insects and register are often in different directions, or more frequently the collections are broken up, and the register is practically useless. All this is happily changed: an esteemed friend and colleague carries his recording to a minuteness of detail verging on that of a six-inch ordnance map! This

change should continue, but many years must elapse before any broad generalizations can be deduced from the mass of observations. Not only must observers be more evenly spread over the land, but (as a body) their special studies must also be less concentrated on one particular Order.

The present short paper enumerates the species of "*Neuroptera*" (mostly *Trichoptera* and *Planipennia*) observed by me during a fortnight's visit to what may broadly be termed the lower portion of the valley of the Axe, from July 28th to August 10th, 1902. The weather was unpropitious, only an aggregate day of sunshine in the 14!; not much rain, but nearly constantly cold, and if the temperature did rise occasionally, the result was supersaturation of the atmosphere from former heavy rain. To be more precise in localization, the district explored embraced a radius of about five miles from Seaton Junction Station, flat in the river valley, but undulating (up to 600 feet) beyond. In 1879 the late Mr. Parfitt, of Exeter, published the *Neuroptera* of Devon in the "Transactions of the Devonshire Association Adv. of Science" for that year, but I find therein no allusion to the district worked by me, though the information for the Exe valley, further west, is tolerably full. I have thought it advisable to include (in square brackets) certain species taken from time to time at Seaton and neighbourhood by the Rev. A. E. Eaton, some of which have been already recorded in this Magazine. My list might, perhaps, have been somewhat longer, had not so much of my time been devoted to one particular species (*cf. ante*, pp. 212, 213).

TRICHOPTERA.

LIMNOPHILIDÆ :—*Limnophilus marmoratus*, Ct., the Axe at Whitford; *L. auricula*, Ct., beaten out of conifers in the Royal Deer Park at Shute; *L. sparsus*, Ct., near Colyton.

SERICOSTOMATIDÆ :—*Sericostoma personatum*, Spence, along the Axe towards Axminster, common; and tributary to the Coly. *Goëra pilosa*, F., Whitford [*Silo pallipes*, F., near Axmouth]. [*Crunæcia irrorata*, Ct., Axmouth and Seaton]. *Lepidostoma hirtum*, F., Whitford.

HYDROPTILIDÆ :—*Agraylea multipunctata*, Ct., on the bridge at Whitford. [*Hydroptila Maclachlani*, Klap., Axmouth and the Landslip. *H. forcipata*, Etn., Shute. *Oxyethira falcata*, Mort., Ottery and Kilmington]. One or two species were common near Whitford, but only females were brought home. Mr. Morton has kindly given me the benefit of his good eyes by examining the materials in this Family.

LEPTOCERIDÆ :—[*Beræa pullata*, Ct., Axmouth, abundant, and Bovey Common, Seaton]; *B. maurus*, Ct., at a "dribble" on high land west of Shute [Seaton and Haven Cliff, Axmouth, abundant; *B. articularis*, Pict., Haven Cliff near Axmouth,

a few]. *Odontocerum albicorne*, Scop., tributaries to the Coly, not common. *Molanna angustata*, Ct., Whitford. *Leptocerus cinereus*, Ct., abundant on the Axe, also tributaries to the Coly, a form in which the only marking on the wings of the ♂ is the arcular spot; *L. albifrons*, L., Whitford and elsewhere on the Axe and Yarty, common; *L. bilineatus*, L., Whitford, one; *L. dissimilis*, St., Whitford, rare. *Mystacides azurea*, L., Whitford and elsewhere, common. *Trienodes conspersa*, Rbr., on the Axe and mouth of the Yarty, common, cf. ante pp. 212, 213. *Adicella reducta*, McLach., at small streamlets near Seaton Junction and Whitford [Axmou]. *Setodes interrupta*, F., on the Axe near Whitford, one.

HYDROPSYCHIDÆ:—*Hydropsyche instabilis*, Ct., one, precise locality uncertain; *H. guttata*, Pict., singly, on the Axe at Whitford, and the Coly; *H. lepida*, Pict., very abundant at Whitford, also at streams tributary to the Axe and Coly. *Diplectrona felix*, McLach., near Dalwood, one [Branscombe and the Landslip]. [*Plectrocnemia brevis*, McLach., sandstone cliffs at Seaton, occasionally at the base of the cliffs. Mr. Eaton caught two in my company, but I did not care to trust myself on the face of the cliffs, where the insect frequents damp places caused apparently by percolation of surface water, which is soaked up by the herbage; a more unlikely spot for a species of this genus it is difficult to imagine]. *Polycentropus flavomaculatus*, Pict., common at Whitford, also on tributaries to the Coly. *Tinodes waueri*, L., common at Whitford; [*T. aureola*, Zett., Branscombe and near Axmouth, singly; *T. unicolor*, Pict., Haven Cliff near Axmouth, not common.] *Lyse phæopa*, St., near Whitford, one. *Psychomyia pusilla*, F., common, but not abundant, at Whitford.

RHYACOPHILIDÆ:—*Rhyacophila dorsalis*, Ct., on the Axe at Whitford, and Branscombe, singly. *Agapetus fuscipes*, Ct., generally common at small streamlets; *A. comatus*, Pict., common on the tributaries to the Coly.

PLANIPENNIA.

PANORPIDÆ:—*Panorpa germanica*, L., singly, over the district.

HEMEROBIIDÆ: *Hemerobius micans*, Oliv., Shute churchyard; *H. lutescens*, F., near Colyton, one; *H. humuli*, a few scattered over the district; *H. stigma*, St., conifers in the Royal Deer Park at Shute; *H. atrifrons*, McLach., same locality, two examples; [*H. concinnus*, St., one in a spider's web at Seaton, the typical form]

CHRYSOPIDÆ:—Of the genus *Chrysopa* I brought back forty individuals, the majority of those seen; they were nearly all beaten from *Frazinus*, and scattered over the district. I find six species which sum up numerically as follows:—*Ch. ventralis*, Ct., 3; *flavifrons*, Brauer, 24; *tenella*, Schnd., 7; *alba*, L., 1; *flava*, Scop., 2; *vulgaris*, Schnd., 3.

CONIOPTERYGIDÆ:—*Coniopteryx aleyrodiformis*, St., and *psociformis*, Ct., Seaton.

PSEUDO-NEUROPTERA.

The few **EPHEMERIDÆ** and **PERLIDÆ** seen are not here enumerated.

PSOCIDÆ:—These were not specially attended to, and the date was somewhat too early; *Stenopsocus (Graphopsocus) cruciatus*, L., Seaton. *Elipsocus (Mesopsocus) unipunctatus*, Müll., Seaton; *E. Westwoodii*, McLach., Seaton, and from

conifers in the Royal Deer Park at Shute, tolerably common. [*Ectopsocus Briggsi*, McLach., Seaton, in the house]. *Clothilla pulsatoria*, L., Seaton Junction, in the hotel.

ODONATA:—*Sympetrum striolatum*, Chp., Whitford, at overflow pools. *Aschna cyanea*, Müll., seen once or twice in lanes. *Calopteryx Virgo*, L., abundant on the Axe, also on tributaries to the Coly. *Platycnemis pennipes*, Pall., not rare on the Axe. *Ischnura elegans*, V. d. L., a few at Whitford at overflow pools. *Agria puella*, L., a few at a weedy meadow pond near Shute. The scarcity of sunshine was fatal to the appearance of dragon-flies on the wing; the marshes towards the mouth of the Axe, where not under tidal influence, should furnish several species.

Lewisham, London :
August 31st, 1902.

SILPHA ATRATA, L., VAR. *SUBROTUNDATA*, STEPH., IN THE
ISLE OF MAN.

BY J. HAROLD BAILEY, M.B.

During the present year I have made special search for this form in the neighbourhood of Port Erin, stimulated thereto by reading in Mr. W. E. Sharp's paper on "Some Speculations on the Derivation of our British *Coleoptera*" (Trans. Liverpool Biol. Soc., vol. xiii, 1899, p. 176) that "even that peculiarly Irish form, *Silpha subrotundata*, occurs in the Isle of Man." I have so far been successful in finding between forty and fifty specimens. The first example was taken under a stone on March 31st, and others were captured in April, May, June, and July; April producing the greatest number. All except five occurred under stones, usually singly or in pairs, never more than four specimens being taken under one stone. They were found scattered over an area of ground three miles from one point to the other. Stones by the sides of lanes on the level ground (30 to 50 feet above sea level) were the most productive; a few occurred on hilly ground, 300 to 400 feet high, at Bradda, Surby, and the Mull Hills; on the sea shore only three examples were taken. Those which were found otherwise than under stones occurred as follows:—one crawling up a stone wall, two crawling on the footpath in the day-time, one similarly at dusk, and one after dark whilst searching with a lantern.

On examining the series, the most interesting fact is that not only do they correspond to the Irish form, *subrotundata*, Steph., but they are all of the brown form of this variety.

Messrs. Johnson and Halbert, in their "List of the Beetles of Ireland," p. 692, suggest that the type form *Silpha atrata*, L., is in Ireland represented solely by the var. *subrotundata*, which is found

there both in the black and brown forms. The same may possibly hold good for the Isle of Man, with the further limitation that only the brown form of *subrotundata* occurs. I have not met with an example of the type form *atrata* nor its var. *brunnea* in this particular district, nor in some other parts of the Island in which I have collected slightly at various times.

Comparing the Manx specimens with a long series of the type *atrata* and its var. *brunnea*, which I captured in company under loose bark of a tree trunk by the Shropshire bank of the river Ceiriog, the following points are worthy of notice. First, as regards size—measuring in each case from apex of thorax to apex of elytra, ignoring the head—the type *atrata* averages from 11 to 12 mm. in length, a few smaller examples only 10 mm. The specimens of the var. *brunnea* mostly measure 10 mm., a few 9 mm., and a few larger specimens 12 mm. The length of my Manx *subrotundata* is as a rule 13 mm., some larger ones 14 mm., while three or four examples only measure 10 mm. As regards shape they are almost invariably much broader in proportion than the type *atrata*, the elytra being more dilated in the middle of the margins, the distance between the outer raised line and the elytral margin being distinctly wider than in the type. As Messrs. Johnson and Halbert remark “the reflexed margin of the elytra is strongly developed, and extends almost to the apex.” The thorax is less closely punctured in the middle of the disc; though in a few specimens this difference is not so well marked as in the rest; the base of the thorax appears broader, and its posterior angles project further beyond the line of the elytral margins than in the type.

My specimens confirm the same writers' statement that the supposed difference in the length of the central raised line on the elytra is not to be relied on as a distinction. Only in about 40 per cent. of the specimens is the middle line the longest. As to the supposed occurrence of *subrotundata* in England, Messrs. Johnson and Halbert say that there do not seem to be any satisfactory records. It may possibly be that the few records really refer to occasional larger and broader specimens of the type approaching the var. *subrotundata*, just as there are occasional smaller and less broad specimens amongst the *subrotundata*—a partial reversion to the type form possibly. Certainly if the true *subrotundata* occurred in England we should expect it to be taken in some numbers, judging from its abundance in the localities where it is found in Ireland and the Isle of Man.

The difficult questions as to the derivation of *subrotundata* in Ireland and the Isle of Man, and the absence there of the type form, remain for future investigation and speculation.

Port Erin, Isle of Man :
September 8th, 1902.

On Otiorrhynchus tenebricosus and O. fuscipes.—In view of the uncertainty which must attend any attempt to discriminate with accuracy between these two species by means of the characters laid down for them in our English text books, and the consequent liability to error in records of their distribution, it may be well to draw attention to the fact that the males at least are readily distinguishable by the following characters :—

Legs piceous or black ; last ventral segment with a transverse series of longitudinal striae placed twice as closely at the sides as in the middle...

tenebricosus, Herbst.

Legs red, knees and tarsi black ; last ventral segment with the longitudinal striae practically equidistant throughout the series *fuscipes*, Walt.

The differences in the relative proportions of the joints of the funiculus appear to me too difficult of appreciation to be of much use for taxonomic purposes.

My acquaintance with *O. tenebricosus*, though sufficient for the present purpose, is limited ; I only have it from the neighbourhood of Dover, where I took it commonly in April, 1876 ; *O. fuscipes* is common here ; neither species so far as I know occurs in Norfolk. Whether the name *fuscipes*, Walt., is correctly applied to the insect mentioned above is not altogether clear. Many years ago there was much discussion of this matter between E. C. Rye and F. Smith ; the former seeking to show that the *O. fuscipes* of Walton was nothing but *O. tenebricosus*, the latter maintaining that *O. fuscipes*, Walt., was a distinct species, and the same as *O. fuscipes*, Ol. I am not aware that the question has ever been satisfactorily settled, but it is clear that we have two well-ascertained species, whatever may be their correct names (cf. Rye, Ent. Mo. Mag., ii, pp. 181, 233 ; Ent. Ann., 1867, p. 120 ; Smith, Ent. Mo. Mag., ii, p. 232).—J. EDWARDS, Colesborne, Cheltenham : September 11th, 1902.

Bagous lutosus, Gyll., a British insect.—In looking through a useful resumé by Mr. Newbery, of what is known about the British species of this genus (Ent. Rec., xiv, pp. 149—156, June, 1902), I found the above species excluded, apparently on the ground that neither the author nor Mr. Champion had seen a British specimen possessing the characters proper to *lutosus*, Gyll. As I had included the latter in my lists of Norfolk *Coleoptera* (Trans. Norfolk and Norwich Nat. Soc., v, p. 488 ; Victoria History of Norfolk, i, p. 134), I thought it well to re-examine my material in order to make quite sure that I had not misinterpreted the descriptions given in Cox's Handbook and Fowler's Col. Brit. Islands. I find that my single example taken on Wretham Heath, Norfolk, August 4th, 1890, exhibits the distinctive characters given for *B. lutosus*, Gyll., in the works named, and also by Mr. Champion (Ent. Mo. Mag., xxxiv, pp. 52—54). The sudden narrowing and subsequent production of the apical portion of the elytra is very evident and characteristic. Moreover, by the kindness of Mr. Champion, I have been enabled to compare my specimen with his Swedish example of *B. lutosus*, ex coll. Thomson (believed to have come from Gyllenhal himself), and a specimen sent by Mr. Walker from Besika Bay ; except that the sutural stria is not so conspicuously deeper than the remainder, it agrees *ad punctum* with the former and very well with the latter. Mr. Champion also sent me his specimen of what is known as the large form of *B. glabrirostris* ; this insect is at least one half larger than normal

B. glabrirostris, and, contrary to what I have observed in the many examples of the latter which have come under my notice, the pale spot beyond the middle of the third interstice is *not* continued across the third interstice.

It appears doubtful whether the British species of this genus are, even now, thoroughly known; I took at Ranworth on July 24th, 1890, a specimen with excavated prosternum, third tarsal joint nearly twice as wide as the second, and the antennæ inserted at the middle of the rostrum, which otherwise resembles *B. alismatis*, Marsh., so closely that it stood in my series of the latter for a long time; but for the widened third joint of the tarsi this specimen might, having regard to the variability in facies exhibited by the species of this genus, pass muster as *B. tempestivus*, Herbst.—Id.: July 30th, 1902.

Some water beetles of the Esher district.—As during the present year I have had several opportunities of working the ponds of the Esher district, and have turned up several unexpected species, a short account of my captures may be of interest. Among the *Halipidæ* nothing of importance was found, but *Pelobius tardus* occurred plentifully in one or two places. Several *Bidessus geminus* were taken out of a muddy pool, with a few *Cælamбус impresso-punctatus*, and one *C. confluentis* and several *C. versicolor* were captured in a neighbouring pond. *Cælamбус inæqualis* was common.

The best species of *Hydroporus* taken were *H. obscurus*, *umbrosus* and *tristis*, the last two being, I believe, common in Scotland. *Agabus Sturmi* and *nebulosus* occurred freely. *Ilybius fuliginosus* and *ater* were plentiful, and a few *I. fenestratus* were taken; but the best species of this genus was *I. ænescens*, which was in some abundance in two ponds. *Copelatus agilis* and *Rhantus exoletus* were common, and two *Rhantus bistriatus* were secured. *Colymbetes fuscus* and *Acilius sulcatus* were abundant, and in one small pond I was delighted to find a number of *Hydaticus seminiger*; sixteen specimens were captured with one net in about an hour.

This pond bears a close resemblance to those in which Mr. W. E. Sharpe takes the insect, being thick and muddy without weed, and, as in Mr. Sharpe's locality, *Copelatus agilis* and *Cælamбус impresso-punctatus* occur with it. The species was immature on September 6th. *Dytiscus punctulatus* and *marginalis* occurred in the same pond, but *D. circumflexus* was not found at all, although comparatively plentiful in other localities near London. The common *Gyrinus natator* was abundant, and in March a long series of *G. minutus* was taken; they were swimming on shallow water among sphagnum. The latter was not to be found this September, although carefully searched for; it has not, I believe, been previously recorded from the south of England.—STANLEY W. KEMP, 80, Oxford Gardens, Notting Hill, W.: September 16th, 1902.

Læmostenus complanatus, Dej., a British insect.—Mr. Champion's surmise in the note on this insect in the last issue of this Magazine (p. 216) that it would probably be found mixed with *P. terricola* in British collections proves correct in my case. I at once carefully re-examined the supposed exponents of *P. terricola* in my cabinet, and found of the eight that three were undoubtedly *L. complanatus*; these three were all taken together under bricks in a granary yard at Strood in June, 1899. The differences between the two insects are quite striking, when

attention is drawn to them, and I am surprised I did not notice the fact when putting away these three with the others.—T. HUDSON BEARE, 10, Regent Terrace, Edinburgh: September 5th, 1902.

Coleoptera in a Berwickshire Moss.—Thanks to the kindness of my friend Mr. J. E. Black, of Peebles, who conducted me to the spot, I had a day's collecting at Gordon Moss on Saturday, July 5th. This Moss is evidently the remains of a much more extensive one, but it has gradually been reclaimed and brought under cultivation, and now only a comparatively small remnant remains in its original condition—an attempt to exploit it by a Moss Litter Company having ended in financial failure.

The Moss contains numerous deep holes, descending far into the peat, and the ground between is mostly covered with dwarf birch and willows; one has therefore to exercise great care in working over it to avoid a sudden and abrupt ending to the day's collecting. Though the results of the day's working was not as satisfactory as the peculiar conditions of the spot promised, still I found some interesting insects.

By beating the shrubs the following were obtained:—*Elatér balteatus*, L., *Sericosomus brunneus*, L., *Cœliodes rubicundus*, Pk., *Deporaus betulæ*, L., *Rhynchites uncinatus*, Th., *Anthonomus comari*, Crotch, *Halysia 18-guttata*, L., *Crepidodera smaragdina*, Foud. General sweeping produced *Limonius minutus*, L., *Corymbites tessellatus*, L., *Luperus flavipes*, L., *Hydrothassa marginella*, L., *Adimonia suturalis*, Th., *Microcara livida*, F., *Cyphen nitidulus*, Th., *C. coarctatus*, Pk., *Ceuthorrhynchus ericæ*, Gyll., *Ceuthorrhynchidius versicolor*, Bris., *Gymnetron becoabunga*, L., *Phytobius 4-tuberculatus*, F., *Anthobium minutum*, F., *Hydroporus memnonius*, Nic., and *Rhinosisimus viridipennis*, Steph.; curiously enough though I have never taken this latter insect in its usual habitat this is the second time I have swept it up recently in Scotland. Under the bark of a fallen Scots fir near the edge of the Moss, *Rhizophagus dispar*, Pk., *Bolitochara obliqua*, Er., and *Phleopora reptans*, Gr., were obtained, and a single specimen of *Necrophorus mortuorum*, F., was knocked down as it flew across the bog.

Mr. Black, during a visit a few days before, beat *Magdalinus carbonarius*, L., off a birch tree, and he has also taken *Acilius canaliculatus*, Nic., commonly out of one of the peat-holes, accompanied by *Dytiscus marginalis*, L., and *D. punctulatus*, F.; on the occasion of our visit water-nets had not been taken with us, but we could see *D. marginalis* swimming about in one of the pools.—ID.

Metæcus paradoxus in a nest of *Vespa vulgaris* 30 feet from the ground.—The small "anchor-faced" wasp, *Vespa vulgaris*, is very abundant this season. I had a large nest brought me this week from the roof of a house 30 feet high, and suspended under the tiles, a very unusual site. I was surprised to find *Metæcus* in it. This tends to support the theory advanced by Dr. Chapman that the larva of the parasite is taken into the nest by the wasps with the rotten wood for building.—W. H. TUCK, Tostock: September 5th, 1902.

Antennal movements in a decapitated Stag Beetle.—Some time ago the decapitated head of a large male stag beetle (*Lucanus cervus*) was found by one of my

sons on the top of a gate post at Wimbledon about 8 a.m. As it was a particularly fine specimen he brought it up to me at Lloyd's. At the time I received it (about 11 a.m.) both of its antennæ were waving about freely; sufficiently so to be of interest to many of my friends in the "room." Each antenna seemed to work quite irrespectively of the other, and one would often be still while the other moved. Their movements were not in any way rhythmical, the long basal joint of the antenna would be extended and retracted, and quite as a separate movement the rest of the joints would move to and fro from their fulcrum at the apex of the first joint. The lamellar joints of the club would also move separately; the apical joints of the antennæ were very sensitive, and the antennæ would retreat rapidly on their being touched; this condition went on without interruption till 3.40 p.m., when I had to leave to catch a train. I put the head into a little flat cardboard pen box, packing it in with blotting paper in such a way as I thought would allow the antennæ free play; on opening the box, however, after I had got into the train I found that one of the antennæ had got against the side of the box, and from that moment it never moved again. The other, however, went on as before till about 4.30 p.m., when it began to droop, and would only recommence movement on its own account on being touched; at 5 p.m. all movement had practically ceased, and the organ on being lifted fell back to its original position. An interesting point in this matter was that from the time I received it all the other appendages of the head were motionless, in fact, they were already rigorous, and sprang back at once to position on being extended. The sensitiveness to touch of the apex of the antennæ existed to the last observable free movements. There can be little doubt I think that reflex muscular action alone would not account for the movement noticed, the nerve centres could not have been dead, and the absence of movement in the other organs would suggest that the antennæ have separate nerve centres from those which feed the other cephalic appendages.—EDWARD SAUNDERS, St. Ann's, Woking: *June 23rd*, 1902.

Lepidoptera in the Montreux district.—From May 26th to June 6th, 1902, I was at Montreux, on the Lake of Geneva, and devoted part of my time to collecting *Rhopalocera*. The district worked was that between the village of Blonay on the north, and Aigle (about six miles up the Rhone Valley from the Lake) on the south.

Such species as *Leucophasia nivalis*, *Euchloë cardamines*, *Vanessa Io*, *Ceanothympha Pamphilus*, *Thecla rubi*, *Lycæna Alus (minima)*, *Syrichthus malvæ*, and *Nisoniades Tages* were met with almost everywhere; while *Nemeobius Lucina* and *Hesperia sylvanus* were common locally.

I saw about half a dozen *Papilio Podalirius*, but only one of those captured was at all perfect. *Aporia crataegi*, ♂s, were out in some force by June 5th. *Colias Hyale* was to be seen fairly frequently, but I did not come across any *Colias Edusa*, except one var. *Helice*, taken at Blonay on May 31st, which is in first rate condition.

Of the Fritillaries I took *Argynnis Selene* (one, worn), *A. Dia* (two, worn), *A. Euphrosyne*, *Melitæa aurinia*, *M. Athalia*, and *M. Cinxia*. The last four species all in perfect condition.

The *Vanessidæ* were a good deal in evidence, *V. Io* and *V. cardui* heading the

list in point of numbers. Of *V. Antiopa* I took two, but they are far from perfect. I noticed a good many more, but did not succeed in getting them. *V. c-album* was frequently seen, but *V. urticae* was almost absent. I noticed this last named species, together with *Euchloë cardamines*, *Lycæna albus*, and *Nisoniades Tages*, flying at an elevation of about 4000 feet on the base of the Rochers de Naye. There was a good deal of snow even as low as this in May.

Erebia Medusa and *Epinephele hyperanthus* were on the wing in the vicinity of Aigle, and in the same locality I took *Pararge Aegeria*, *P. Megæra*, *Polyommatus dorilis* (one), and several *Carterocephalus paniscus*.

At Les Avants I netted two *Pararge Hiera*, and obtained one more later at Blonay.

As to the *Lycenidae*. I think I am not far wrong in saying that *L. Albus* was quite the commonest butterfly seen. It swarmed round the puddles and streamlets on the roads and paths, rising in a cloud as one passed by. *L. Icarus* (*Alexis*) and *L. Acis* (*semiargus*) were plentiful, and good single examples of *L. argiolus* and *L. cyllarus* were taken.

Turning to the *Heterocera*, several species were very common in the meadows at Veytaux, and near Aigle, such as *Euclidia glyphica*, *Ematurga atomaria*, and *Scoria dealbata* (*lineata*). I also took in the same localities two *Erastria deceptor*, several *Strenia clathrata*, and single examples of the following, *Venilia maculata*, *Minoa murinata*, *Emmelesia albulata*, *Tephrosia consonaria*, and *Crambus pratellus*.

Near Aigle I found two *Zygæna trifolii*, and on May 29th obtained *Plusia chrysitis*, *Eubolia plumbaria*, *Larentia viridaria*, *Eupisteria obliterata*, and *Hypsiptes impluviata*, by beating bushes bordering a very marshy meadow at Villeneuve.

I did not work at all for moths after dark, as there was not to my knowledge any favourable ground within reasonable distance of the hotel.

As regards the weather, I was fortunate in having it fine and hot, with the exception of one day (June 3rd), when a severe storm accompanied by heavy rain visited the district. The effect, as the storm passed over the lake, was very fine.

—PHILIP J. BARBAUD, Bushey Heath, Herts: August, 1902.

A small form of Lycæna Corydon in Oxfordshire.—On August 13th, a dull, sultry day, I visited a chalk pit near Watlington, Oxon., and was astonished to find *L. Corydon* in the utmost profusion lying about in the grass. Their numbers were in excess of my previous experience of any Lepidopterous insect whatever; they seemed unable or unwilling to fly, and when disturbed, merely fluttered feebly in the grass, so that it was impossible to avoid treading on them, and we must unwillingly have destroyed hundreds. What was even more astonishing was the difference in their sizes. A considerable number were about the average bulk, but the majority, both males and females, were extraordinarily undersized, measuring from just under an inch to an inch and a quarter across the wings. Hardly any other butterfly was seen, and the only moths in any force were *Z. filipendula* and *E. bipunctaria*, the former, like the butterflies, refusing to fly, and clinging to the grass and flowers of the Scabious. The next day being bright and fresh the insects

were lively enough, and spread themselves freely over the neighbouring fields, though their numbers in the original locality were still amazingly great.—C. T. CRUTTWELL, Ewelme, Wallingford : *August, 1902.*

An albinic variety of Cænonympha Pamphilus, L.—A young friend, Mr. H. A. Parsons, has just brought in for my inspection a variety of *Cænonympha Pamphilus, L.*, which he had the good fortune to take in July last, near Studland, Dorset. In it the whole upper surface of the fore- and hind-wings has its usual fulvous colour replaced by creamy-white; the usual discal dot and narrow marginal stripe remaining brown, though but faintly so; the under-side of the fore-wings partakes of the creamy-white tint. So complete a case of albinism is exceedingly rare in this species.—CHAS. G. BARRETT, Tremont, Peckham Rye : *September 3rd, 1902.*

On the flight-time of Argyresthia Atmoriella, Bnks.—In a note published in the Ent. Mo. Mag., Ser. 2, xii, 200 (1901), I mentioned that the only specimen of *Argyresthia Atmoriella* that I had seen on the wing of its own accord was flying briskly at 7.40 p.m. (*i. e.*, about 40 minutes before sunset) on June 21st of last year. I have not worked specially for the insect this season, and have only met with two or three examples of it, but one of these, a rather worn female, was netted while flying backwards and forwards close to a branch of larch at 8.5 p.m. (*i. e.*, about a quarter of an hour after sunset), on July 28th. The moth was obviously indulging in a voluntary flight, which was of such an oscillating character that I have little doubt that the insect was intent on finding a suitable place for ovipositing on the branch to which its attention was directed. In view of the particularly sluggish nature of the species, these two instances seem sufficient to prove that its natural flight-time is from rather before to rather after sunset. July 28th is an exceptionally late date for the insect to be still about: last year (after a cold late spring) I took it from June 7th—21st, but this season seems as prolific in record *late* appearances as 1893 was in record early ones.—EUSTACE R. BANKES, Norden, Corfe Castle : *August 8th, 1902.*

Psammotis pulveralis, Hb., in the Isle of Purbeck.—In Ent. Mo. Mag., ser. 2, x, 289, I chronicled the capture in 1899, by a young friend, of a worn specimen of *Psammotis pulveralis* in this district, and it is highly satisfactory to be able to record the fact that a few other examples have, in the course of this and last seasons, been taken in the same spot (which is one of *very* restricted area), and that the species, which is of such rare occurrence in Britain at the present time, is evidently established there. Last year, at the end of July and beginning of August, a friend and I, favoured by particularly fine and hot weather, secured between us eight specimens (*viz.*, seven males and one female), but this season, in spite of several visits to the locality, the only specimen that has been seen is a male that I captured on July 28th, and there seems now but little likelihood of others being met with.

The imago is easily disturbed from among the herbage, &c., at any time during the day, and its flight is slow and weak: in size and habits it closely resembles *Etalea crocealis*, Hb., which occurs in the same spot, and at the same time, but

even if the much more brightly coloured wings of the latter are invisible, a glimpse of its conspicuously white legs is at once sufficient to distinguish it from *P. pulveralis*.

I was in great hopes of finding the larva this year, but repeated searches for it in the spring and early summer were not rewarded with success. It appears to be still unknown and undescribed except in its earlier stages, upon which some notes, made from larvæ hatched in confinement, have been published in Buckler's "*Larvæ of British Butterflies and Moths*," ix, 149-151. The larva is reputed to feed in nature on *Mentha aquatica*, and Mr. Buckler's young larvæ thrive for a short while upon this plant, which he calls (*l. c.*) by the name "*Mentha hirsuta*," while Mr. Porritt reports (*l. c.*) that the newly hatched larvæ under his care took kindly to "common garden mint."—ID.: *August 15th*.

Occurrence of Noctua plecta, L., in April.—It may be of interest to record the fact that on the night of April 16th, 1881, I captured at willow bloom in this neighbourhood a specimen of *Noctua plecta*; it was a female in beautiful condition, and had evidently only emerged quite recently. Unless my memory plays me false, I have seen within the last few years, in one of the entomological magazines, a notice of the capture, also at willow bloom, of a specimen of *N. plecta* as early as April, but am unable to find it: such an occurrence must be very exceptional. In *Entom.*, ix, 273, Mr. Carrington recorded the capture of *N. plecta* and other summer *Noctuæ* at willow bloom near Rannoch, but the appearance of the moths was hardly premature, since the date was June 17th!—ID.

Albinic aberration of Catoptria ulicetana, Hw.—In *Ent. Mo. Mag.*, ser. 2, viii, 63 (1897), I recorded the capture by myself, on May 10th, 1892, of a remarkable albinic aberration of *Catoptria ulicetana* on the Isle of Purbeck coast. Since that note was written I have come across, among some *Micros* waiting to be added to my collection, a second example of this same aberration of *C. ulicetana* that I took on the Isle of Purbeck coast, though not in the same spot as the first one, on May 12th, 1893. Its capture had escaped my memory when penning the note referred to above, though it had been duly entered in my diary at the time. This specimen, which is also a male, agrees very well with the description given (*l. c.*) of the other, except that, near the apex of the fore-wing, three or four cream-coloured costal strigulæ can be traced. I refrain from suggesting a name for this striking aberration, not knowing as yet what degree of albinism is exhibited by var. *conjunctana*, Möschl., which is briefly described in Staudinger and Rebel's "*Catalog*" (1901) as "*multo dilutior, albescens*."—ID.

Teniacampa gracilis, var. rufescens, Ckll., in East Dorset.—This striking variety (popularly known as the "New Forest red form") of *Teniacampa gracilis* has been recorded from Hampshire, Kent and Perthshire (*vide Brit. Noct. and their Vars.*, p. 146), but I was quite unaware of its occurrence in Dorset until last April. It gave me especial pleasure, therefore, to see, on April 18th, in the collection of Mr. W. G. Hooker, of Bournemouth, a fine example of this variety, which had been taken by himself a few years ago near Ham Preston, which lies in the portion of *East Dorset* between Wimborne and the western boundary of Hampshire.—ID.

Senta maritima (ulvæ), *Acidalia emutaria*, and *Agdistis Bennetti* in East Suffolk.—All three of these insects being somewhat local, a notice of their occurrence here this year might be of interest. The first specimen of *Senta maritima* was secured on July 15th, flying at early dusk along some reeds in a marsh ditch, close to the banks of the river Deben. Further search on the two following evenings afforded four more, and another was taken on July 25th; I saw others but failed to get near them, owing to the swampy nature of the ground. Most of the examples obtained were more or less worn, and worthless as cabinet specimens, and had to be released; evidently a fortnight earlier would have been a better time. The same may be said of *Acidalia emutaria*, which I captured on the same dates. I was too late to obtain the species in good condition, and of the several specimens netted I only kept three. *Agdistis Bennetti* flew into my room on July 18th attracted by the light, four specimens the same evening, two of these promptly destroyed themselves in the lamp, and the other two I boxed. There is an abundance of its food plant (*Statice limonium*) on the saltings not far from my house. *Senta maritima* seems to have a preference for fresh water rather than salt, at any rate, I discovered its real home here is amongst some reeds standing in water, and bordering a fresh water stream, with an alder carr hard by. *Acidalia emutaria*, on the other hand, kept to the river side, and was confined to one small spot on the river wall where there is plenty of marram grass. It was easy of capture, sitting on the stems of the grasses at dusk in company with dozens of *Acidalia dilutaria*.—A. P. WALLER, Hemley Rectory, Woodbridge: August 30th, 1902.

Eupithecia innotata at Aldeburgh.—On September 10th, 1900, when beating mugwort for larvæ of *Cucullia absinthii* in the neighbourhood of Aldeburgh, I obtained a few larvæ of *E. succenturiata* and several of what I took to be *E. absinthiata*, and the following June bred several of the latter and one of the rare *E. innotata*. I do not remember having noticed any difference in the larvæ, which perhaps is excusable, as the larvæ of *E. absinthiata* vary so much.—GERVASE F. MATHEW, Dovercourt: September 15th, 1902.

Crambus fascelinellus at Dovercourt.—On August 15th I took a fine example of this local species on the sandhills near here. Mr. W. H. Harwood, of Colchester, tells me that he took it here several years ago, but the capture was not recorded.—ID.

Panchlora exoleta, Klug (*Blattidæ*), imported into Scotland.—Foreign species of *Blattidæ* have often been received as involuntary migrants in these islands, and have sometimes obtained record in entomological publications. Mr. Robert Service of Maxwelltown, Dumfries, recently forwarded me a specimen of a beautiful species, *Panchlora exoleta*, Klug, which he found in a living condition among some bananas, probably derived from the West Indies, from which large quantities of the fruit are now being received in this country. The insect had died before its despatch from Scotland, but Mr. Service remarked that with a little care it would no doubt have lived in one of his warm horticultural houses.—W. L. DISTANT, Steine House, South Norwood: September, 1902.

Additional localities for Limotettix stactogala, Am.—As a result of some collecting in the Hastings district during August, I am able to supplement Mr. Edwards' notice of *Limotettix stactogala* as a British insect, by recording some additional localities for it. During the first week in August I noticed some large tamarisk bushes forming the hedge of a cottage garden by the shore at Bopeep, St. Leonards. On the first stroke of the beating stick a number of small green Homopterous larvæ were revealed, which were unfamiliar, and seemed likely to be those of the novelty of which I was in quest. The identity of the species was presently set at rest by the discovery of a single imago of *L. stactogala*. Some ten days after I found the species in the utmost profusion on a few tamarisk shrubs at Bexhill, on a pathway in front of the town, leading down to the beach. These bushes are the last lingering remnants of what was once an extensive hedge, formerly connected, if my memory serves me, with a coast guard station which stood on the spot when Bexhill was a village. Many of the bushes are already dead, and the rest will probably soon follow. The insects here were much more advanced than those I had found at Bopeep, and in a few minutes I was able to secure some thirty or forty imagines, and could have had hundreds had I so wished, though there were still large numbers in the larval condition. Later in the day I again found the insect very plentiful on a tamarisk hedge around the gardens of coast guard cottages some two miles west of Bexhill. During the last week in August I was at Pett, on the other side of Hastings, between Winchelsea and Fairlight, there again the hedges around the coast guard stations were abundantly furnished with the pretty green Homopteron in two distinct localities. The insect thus occurs from Winchelsea in the east to Bexhill on the west, and there can be little doubt that it will be found in other parts also where the food-plant is well established. Some years ago the tamarisk was very generally used at Hastings for garden hedges, but the old plants are being uprooted and replaced by *Euonymus*, and the coast guard stations now remain therefore the chief localities for the shrub and its inhabitant. Considering that where the food-plant is still left the insect is abundant, and remembering that not many years ago its opportunities of sustenance were much more extended through the wider cultivation of its food, there seems a strong probability that the insect was formerly even commoner than it is now, and it seems strange that an attractive looking creature such as this, occurring so abundantly as it does on the coast of East Sussex, should so long have escaped detection. The tamarisk has evidently been neglected by entomologists.—E. A. BUTLER, 53, Tollington Park, N.: September 3rd, 1902.

A few Trichoptera from Llanfairfechan.—Mr. E. Saunders, when staying at Llanfairfechan, North Wales, in July last, took, casually, the following species:—*Limnophilus vittatus*, F., *L. centralis*, Ct., *L. sparsus*, Ct., *Goëra pilosa*, F., *Silo pallipes*, F., *Beraea maurus*, Ct., *Mystacides azurea*, L., *Adicella reducta*, McL., *Hydropsyche instabilis*, Ct., *Philopotamus montanus*, Don., and *Agapetus fuscipes*, Ct.—R. McLACHLAN, Lewisham, London: September 6th, 1902.

A dwarfed example of Chrysopa tenella, Schnd.—At Llanfairfechan Mr. Saunders took a *Chrysopa*, the only example he saw. It proves to be *Ch. tenella*, but in

a very dwarf condition, the wings expanding to only 17.5 mm.; the upper portion of the third cubital cellule in the anterior wings is very much reduced in size, and the dividing nervule ends very slightly before the nervule above it in one of these wings, and very slightly after in the other, the neurulation is also otherwise asymmetrical.—ID.

Recorded localities of British Ichneumons.—The British records of ICHNEUMONIDÆ appear to be so extremely few and scanty that the variety and extent of the literature which has given them birth is amazing; and the poor monographist is expected, not only to wade through and collate *everything*, but also to as far as possible test its accuracy, or he is at once jumped upon by the critic. What I am anxious to obtain is as complete a knowledge as possible of such ICHNEUMONIDÆ (excluding BRACONIDÆ) as have had their *localities* published; and I here ask all and sundry who do not grudge a post card to refer me to—or better, lend me a copy of—any notice not included in the following list of works, all of which are known to contain specified localities for instanced species:—Forster's* Nov. Spp. Insectorum; Donovan's Nat. Hist. Brit. Insects; Kirby and Spence's Introduction; Curtis' Brit. Ent. and Farm Insects; Gravenhorst's Ichn. Europ.; Samouelle's Ent. Cabinet; Stephens' Ill. Brit. Ent.; Encyclop. Brit.,* 1842, vol. ix; Wesmæel's Platyuri Europ.; Desvignes' Brit. Mus. Ichn. Cat.; Newman's Moths; Cameron's* Fauna of Clyde (1876); Dale's* Lepid. of Dorset; Berthoumieu's Ichn. d'Europ.; and the following periodicals:—Ann. Nat. Hist. (1839); Ann.* Scot. Nat. Hist.; Ent. Mo. Mag.; Ent. Ann. (1874); Entom.; Ent. Record; Nat. Journal; The Naturalist (1854); Young Naturalist; Trans. Ent. Soc.; Proc.* Berwick. Nat. Field Club; Zoologist.* The only local lists I have heard of are:—Paget's Nat. Hist. Gt. Yarmouth; Walker's Isle of Man list (Entom., 1872-73, p. 432); Roebuck and Bairstow's list for Yorkshire (Trans. Yorks. Nat. Union, 1877-80); Nat. Hist. Hastings with three Suppl. (1878-98); Marquand's list of the Land's End district (Trans. Penzance Nat. Hist. Soc., 1884); Bridgman's Norfolk list (Trans. Norfolk Nat. Soc., 1894); Parfitt's* Devon list (Trans. Devon Assoc., 1881, p. 241 *et seqq.*); Bignell's South Devon list (*lib. cit.*, 1898); and Luff's Alderney List (Trans. Guernsey Soc. Nat. Sc., 1899). Those bearing an asterisk I have not yet examined.—CLAUDE MORLEY, Ipswich: September 10th, 1902.

Field Notes on Stridulation.—In this Magazine, 1901, p. 166, I drew attention to the fact that *Geotrupes typhaeus* stridulates, at least in part, by the friction of the abdomen upon the elytra; this fact I still maintain, having tested it upon the living insect, although it is strange that the species should also possess stridulating files upon the coxæ, as shown by Mr. Gahan, and confirmed (v. v.) by the Rev. H. S. Gorham.

It may be interesting to here note a few further observations, made entirely in the field, upon the same subject, which appears to have been studied mainly anatomically upon dried specimens. They have probably been noted before, but Cox has paid no, and Fowler little, attention to the subject.

Necrophorus mortuorum and *Geotrupes sylvaticus* stridulate by rubbing the apical abdominal segments upon the elytra; the coxæ play no part, since, when the elytra are both held open, the insect is incapable of emitting sound; when one

only is raised, the sound is thinner by half; and when the coxæ are held down the sound is not impaired. *Geotrupes stercorarius*, L., stridulates in a similar manner, but much more feebly than *G. sylvaticus*.

Aromia moschata, *Grammoptera ruficornis*, *Strangalia armata*, and probably most of our indigenous *Cerambycidae*, stridulate by a vertical motion of the hind margin of the thorax upon the base of the elytra. *Mesosa nubila* also stridulates, though so weakly that I could only catch the sound on placing the insect close to my ear—out of my range of vision.

Pelobius tardus raises such a "shout," as noted by Fowler, that one is at first inclined to drop so uncannily an insect; and I have been enabled to confirm Bedel's observation on this head respecting *Hydrobius oblongus*, though I consider the sound comparatively strong, especially when the beetle is just taken from the water. *Hydrous caraboides* also stridulates distinctly, but in the last three species I have not noticed the source of the sound.

Erirrhinus vorax and *E. validirostris* both stridulate loudly by rubbing the apex of the abdomen vertically upon the elytra; the latter moving the whole no other part of the body, though in the former the sound is often accompanied by wavings of the rostrum, which appears to be a warning attitude, and, with so well-developed an organ, is doubtless a fearsome sight.

Perhaps the most interesting instances of all are to be found in the ♂♂ of the *Mutillidae*. That of *Mutilla europæa*, as noted by Kirby and Spence, emits a "sibilant chirping"; this is caused by the friction of the abdominal segments upon one another, and takes the form of two very distinct notes, of which one is produced by the apical, and a deeper by the basal segments. That of *Myrmica melanocephala* always stridulates in like manner, though in only one note, feebly, seven times in quick succession, and then pauses as though to take "breath."

The above are the only cases I can instance at the moment as having come under my personal observation, though many more are awaiting investigation. In the *Carabidae*, *Staphylinidae*, *Chrysomelidae* and *Hemiptera*, however, protective odours appear to take the place of stridulation; and attention has recently been drawn to a possible stridulating organ in *Anopheles maculipennis* by Shipley and Wilson (Trans. Roy. Soc. Edin., 1902, p. 367).—ID.: June, 1902.

Reviews.

PROCEEDINGS OF THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, for 1901. 8vo, pp. 76, with two plates. London: published at the Society's Rooms, 1902.

This annual summary of the work done by this old and useful London Society is thinner than its immediate predecessors, chiefly on account of only two papers being printed in full. But the reports of the excursions and ordinary meetings are extensive, and in some cases evidently embody the pith of more lengthy papers. Much of interest is to be found in these Reports, and also in the Report of the Council and the Treasurer's balance sheet. The Society is flourishing, and now numbers 174 members, and the balance sheet shows careful financial supervision; that there is a small but progressive demand for its publications on the continent shows that it is recognised abroad as of importance. This

is as it should be; the fate of numerous local Societies both at home and abroad is to be neglected, often solely because sufficient care is not taken by the executive to show how their publications (if any) can be procured.

The brochure under notice has been very carefully edited, and the only suggestion we have to make is that, in the index, "*Mollusca*" should not be intercalated between "*Lepidoptera*" and "*Neuroptera*," and all in the same type, for no apparent reason other than alphabetical convenience.

ORCHARD AND BUSH-FRUIT PESTS, AND HOW TO COMBAT THEM: by CECIL WABBURTON, M.A., F.Z.S., Zoologist to the Royal Agricultural Society of England. Pp. 20, 8vo, with twelve illustrations. London: John Murray, 1902.

This official pamphlet (published at the nominal price of sixpence) is intended for distribution amongst British fruit growers, and should prove very useful by giving in a few concise phrases the life-history of the most destructive insect pests and allies, and the best means of prevention or cure. It is a marvel of brevity, and in this respect differs much from the long and laborious reports published in the United States and elsewhere: those familiar with both must decide as to which is the more serviceable. It is popular to the degree of omitting all scientific names, a practice of doubtful utility, because the same English name is often applied to different things, but in most cases the species is figured, though sometimes not in its perfect stage.

A LIST OF THE BEETLES OF IRELAND: by Rev. W. F. JOHNSON, M.A., F.E.S., and J. N. HALBERT. Proceedings of the Royal Irish Academy, 3rd Series, vi, pp. 535-827 (1902).

This is the first general list of Irish *Coleoptera* that has been published. The compilers have for a long time been working at the Irish beetles; they have themselves collected a large number of species, and they have taken great pains to gather together the records of the earlier collectors. The result is a really valuable list; it is true that only 1630 species are catalogued, or less than half the number recorded from the British Isles, but the workers at the Irish *Coleoptera* have been few and far between, and the only wonder is that so much has been accomplished.

There is a very interesting introduction, dealing with questions of distribution, and the value of the work is much enhanced by the completeness of the references, together with the careful bibliography and the clear index.

Three species are added to the British list, viz., *Bembidium argenteolum*, Ahr., and *Stenus palposus*, Zett., from the shores of Lough Neagh, and *Xantholinus cribripennis*, Four., from three or four localities in Ulster; the last mentioned, however, is perhaps not really different from the *X. distans*, Kr., of our collections.

Among other interesting species may be mentioned *Carabus clathratus*, L., and *Pelophila borealis*, Payk., which seem to be much commoner in Ireland than elsewhere in Britain, *Dyschirius obscurus*, Gyll., a very interesting re-discovery, *Hydroporus obsoletus*, Aubé, *Bidessus minutissimus*, Germ. (recently confirmed by Mr. Halbert; Mr. Wollaston doubted the record from the River Lee, Cork), *Quedius longicornis*, Kr., *Pyropterus affinis*, Payk., *Silis ruficollis*, F. (taken abundantly by sweeping herbage close to high water mark near Wexford), *Strangalia aurulenta*, F., *Otiorrhynchus auropunctatus*, Gyll. (not recorded from England and Wales or

Scotland), and *Rhopalomesites Tardyi*, Curt., which is locally abundant in wooded districts throughout Ireland. *Philonthus astutus*, Er., is doubtfully included, but the capture of two specimens of this species near Sandgate by the late Mr. A. C. Horner, and one by Mr. J. H. Keys at Plymouth, makes the single Irish record somewhat more probable; several species which had been wrongly inserted in the list (such as *Elleschus scanicus*, Payk., &c.) have been deleted, and in fact no pains have been spared to make the list as complete and correct as possible. We believe that much still remains to be done, and hope that it will not be long before the compilers find it necessary to issue a supplement to their work. One new British species, indeed, *Lamostenus complanatus*, Dej., has already been added.—W. W. F.

Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, July 10th, 1902.—Mr. F. NOAD CLARK, President, in the Chair.

The President, in a few sympathetic words, referred to the sudden death of Mr. Mark Winkley, an old Member, and until recently a regular attendant at both ordinary and field Meetings.

Mr. South exhibited a few specimens of *Melitæa aurinia*, the only ones bred from a large number of larvæ, and referred to the failure as unaccountable. Mr. West (Greenwich), the following Hemiptera, taken by Mr. Ashby at Deal during the last week in May and the first week in June:—*Podops inuncta*, *Sciocoris cursitans*, *Rhyparochromus chiragra*, *R. prætextatus*, *Trapezonotus agrestis*, *Macrodema micropterum*, and *Plinthius brevipennis*. Mr. Ashby, several species of Coleoptera he had taken on the Deal sandhills in June, including *Zabrus gibbus*, *Saprinus virescens*, *Melanotus punctolineatus*, *Chrysomela distinguenda*, and *Apion sedi*. Mr. Step read a short report of the Field Meeting at Ranmore Common on June 7th, 1902, and regretted the unfavourable weather which the nineteen who attended had to endure.

July 24th, 1902.—The President in the Chair.

Mr. F. M. B. Carr exhibited twelve varieties and the male parent of *Amphidasya betularia*, bred from ova deposited by a black female taken in cop. at Lee in 1901. Mr. Kemp, a series of *Lamostenus complanatus*, a species new to the British list, nearly related to *Pristonychus terricola*, and taken by him near Dublin; also *Carabus clathratus*, *Pelophilus borealis*, *Blethisa multipunctata*, *Chlænus nigricornis*, dark *Pterostichus cupreus*, *Bembidium bipunctatum*, *Calambus quinquelineatus*, *C. novemlineatus*, *Orectochilus villosus*, and *Rhopalomesites Tardyi* from Lough Neagh, together with *Bembidium argenteolum*, a recently added species also from Lough Neagh; likewise from near Dublin, *Phytosus balticus*, *Diglossa mersa*, yellow *Cercyon littoralis*, *Saprinus marilimus*, *Telephorus Darwinianus*, *Cillenus lateralis*, *Polydrusus chrysomela*, *Hydroporus* several species, *Silpha atrata* and var. *subrotundata*, *Hæmonia appendiculata*, *Chrysomela Banksii*, *Barynotus Schönherri*, *Meloë violaceus*, and a series of the purely Irish *Otiorrhynchus auro-punctatus*. Also a series of the rare *Lestes dryas* from Hanwell, with *L. sponsa* for comparison.—HY. J. TURNER, Hon. Secretary.

DIASTICTUS VULNERATUS, STURM: AN ADDITION TO THE
BRITISH LIST.

BY E. A. NEWBERRY.

The above interesting addition to our list has been sent to me by Mr. Claude Morley, who took it in Suffolk under circumstances which I leave him to describe.

The following diagnosis of the genus is from Mulsant's *Lamellicornes*, 2nd Edition, 1871:—

Thorax not ciliated at the sides, nor creased on the upper-side with transverse furrows separated by raised interstices. Postpectus marked in front of the posterior coxæ with a triangular space limited by a raised line. Posterior tarsi with first joint feebly triangular*DIASTICTUS*, Muls.

The single species is thus characterized:—

Oboval, convex, black or black-brown, slightly shining above; thorax marked with a spot of red-brown near the sides, rather coarsely and densely punctured, creased with a furrow on the second half of its middle line, and with an impressed line (*raie*)* or transverse furrow on the sides of its disc; elytra sensibly arched on the back, with furrows sulciform posteriorly, forming grooves, with interstices raised in the form of ribs. Long, 2½ mm.*vulneratus*, Sturm.

Mulsant states that it is found principally in the cold and temperate zones of France, and prefers dry and sandy places. "Rather rare on the high ground in the environs of Lyons." It has rather a wide distribution in Europe, and it is not surprising that it has been found in Britain.

The following table will assist in distinguishing the insect from the numerous small genera which come at the end of the *Aphodiidae*, none of them comprising more than two British species, *Ægialia* and *Dimalia* are usually excluded on account of their mandibles not being entirely hidden by the hood. Although scientifically correct, this is not a very obvious character, I have, therefore, included them.

I. Thorax without transverse grooves.

A. Margins of thorax without a fringe of hairs or bristles.

a. Elytra with punctured striæ and nearly flat interstices...

AMMOCORIUS, Muls. (*brevis*, Er.).

a.a. Elytra with impunctate striæ and ridge-like interstices...

DIASTICTUS, Muls. (*vulneratus*, Sturm).

A.A. Basal and side margins of thorax fringed with conspicuous hairs.

b. Posterior tarsi with middle joints longer than broad; apical spurs long and slender*DIMALIA*, Muls. (*sabuleti*, Pk.).

* This furrow is very superficial, and cannot be mistaken for those in *Pleurophorus coxæus*, which is an elongate, subcylindrical insect, *D. vulneratus* being short, obovate.

- b.b.* Posterior tarsi with middle joints not longer than broad ; apical spurs short and thick.....ÆGIALIA, Lat.
(Thorax rugose, *rufa*, F. Thorax nearly smooth, *arenaria*, F.).
- II. Thorax with transverse grooves and raised interstices.
- B. Margins of thorax fringed with bristles ; thoracic grooves deep, four or more in number.
- c.* Body parallel ; tarsal claws distinct...
RHYSEMUS, Muls. (*germanus*, L.).
- c.c.* Body enlarged behind ; tarsal claws very small...
PSAMMOBIUS, Heer.
(Thoracic furrows deeply and rugosely punctured, *porcicollis*,
III. Thoracic furrows shallowly punctured, comparatively
smooth, *sulcicollis*, Ill.).
- B.B. Margins of thorax without bristles ; thoracic grooves shallow, two in numberPLEUROPHORUS, Muls. (*cæsus*, Pz.).

It must be remarked that the characters in the table are only intended to apply to the British species, which are placed in parentheses. *Ammæcius* is, perhaps, really an *Aphodius*, as much as some of the other genera which I have omitted, but its place is somewhat uncertain. *D. vulneratus* resembles *Oxyomus sylvestris*, Scop. (*porcatus*, F.), superficially, but may be distinguished by its differently shaped head, and above all by the longer of the two spurs of the intermediate and posterior tibiæ being much longer than the first joint of the tarsi in *D. vulneratus*, much shorter in *O. sylvestris* ; the form of the body is also different.

12, Churchill Road,
Dartmouth Park, N.W. :
September 16th, 1902.

Supplementary note on Diastictus vulneratus, Sturm.—While bicycling from Brandon to Elvedon in the morning of June 14th, 1902, Mr. E. A. Elliott and I alighted to do a little collecting on the heath not far from Mayday Farm, about three miles south of the former town. We did not search for more than five minutes when a heavy shower put a stop to our efforts. These were not wasted, however. Beneath small flints lying conspicuously on the heather and grasses we discovered *Byrrhus murinus*, Fab. (cf. Ent. Mo. Mag., 1900, p. 288), *Harpalus picipennis*, Duft. (cf. Ent. Mo. Mag., 1897, p. 9), *Trachyphloeus aristatus*, Gyll., a species not before noticed in Suffolk, and a Coprid which was at first thought to be the rare *Psammodius cæsus*, Panz., but which Mr. Newbery has been so good as to name *Diastictus vulneratus*, Sturm. As to the locality, I can do no better than quote the words of the Rev. William Kirby's "Journal of an Entomological Excursion into the Isle of Ely" with Thomas Marsham, in 1797 :—"The country here affords few or no objects to relieve the mind from the tedium which its bleakness and sterility produce in it. It may be denominated an ocean of sand, producing little besides

nettles and brakes, with here and there an islet of firs; yet the substratum appears to be chalk" (cf. Freeman's "Life of Rev. W. Kirby, M.A., &c.," p. 107, and "The Coleoptera of Suffolk," p. 11). The formation of these heaths is post-glacial, consisting of chalk, overlaid by plateaux of recent valley gravels; and it is said to have once constituted the bed of a tidal river, though now fifty miles from the sea. To all but a naturalist the view, which has not altered during the past century, is still desolate in the extreme; barren sandy wastes of heath stretching for miles on every hand. In the same vicinity, at Thetford Warren, I have taken the closely allied *Psammobius sulcicollis*, Illig. (cf. "Coleoptera of Suffolk," p. 66, and Ent. Ann., 1865, p. 40), also beneath stones; and I am glad to have added another species to our fauna, since the first (cf. Ent. Mo. Mag., 1898, p. 84; 1901, p. 64) seems to have nearly or quite vacated its indigenous position.—CLAUDE MORLEY, Ipswich: September, 1902.

THE BRITISH SPECIES OF *LEUCTRA*.

BY KENNETH J. MORTON, F.E.S.

Since the publication of my "Palæarctic *Nemouræ*" (Trans. Ent. Soc. Lond., 1894 and 1896) much activity has prevailed amongst continental Neuropterologists, their efforts having been specially and successfully directed to the better elucidation of the smaller species of *Plecoptera* (*Perlidae*). Kempny's papers on *Leuctra* form a marvellous exposition of a genus that had previously been considered impenetrably obscure; Ris has recently made a masterly Revision of the central European *Nemouræ*; while Klapálek, who combines with his systematic work valuable biological studies, has largely extended our information concerning *Teniopteryx*.

The old descriptions of these insects being quite inadequate, the question of synonymy is a great stumbling block, and it is difficult to see how it can be surmounted. Even where types exist in the shape of dried specimens in museums, these are practically not determinable with certainty in their present condition, although they could probably be determined without difficulty, even now, if prepared as microscopic objects.

In *Leuctra* especially, Kempny has been obliged to ignore almost entirely the old names, and new and unfamiliar names are beginning to appear in lists, while familiar ones, such as *L. fusciventris*, find no place. This is of course very unsatisfactory, but the author is not without good excuse.

Leaving the subject of synonymy in abeyance in the meantime, it may be of interest to the few British Entomologists who concern themselves about these insects to give a list of the British species of

Leuctra so far as they are at present known to me. There are six species, as follows:—

1. *L. GENICULATA*, Stephens.—The largest species, easily known from the verticillate hairs on the antennæ, a character which it has in common with *L. Braueri*, Kempny, a species not yet known as British. *L. geniculata* has a wide distribution in these Islands, and frequents standing as well as slowly running waters. It does not as a rule appear before the month of August.

2. *L. ALBIDA*, Kempny.—A summer insect, frequenting rapid streams in hilly districts; known to me from Perthshire and Merionethshire, and no doubt general in suitable localities.

3. *L. KlapáLEKI*, Kempny.—Allied to the foregoing and appearing later, usually about the beginning of August. Ranks next to *geniculata* in size. Known from many Scotch localities, and I think also from Devonshire (Briggs).

4. *L. HIPPOPUS*, Kempny.—Wide spread and appearing very early, March or April.

5. *L. HANDLIRSCHI*, Kempny.—Kempny described two species, *Handlirschi* and *inermis*, which he afterwards concluded were mere races or forms of each other. In this I believe he is right. Some Highland examples come near *Handlirschi*; *inermis* is a common Scotch insect, and is also found in Wales. In some localities appears along with or soon after *hippopus*.

6. *L. NIGRA*, Klap. (Ol., Pict.?).—The least known species to me. I took a single male in Arran many years ago, although it has only now been determined, and this season I have found single examples in Perthshire and Lanarkshire. I believe it is attached to swampy spots where there are springs. It may be looked for early in May.

At the outset of my studies in the genus *Dr.* Kempny very kindly looked over a quantity of material which I had collected in formalin, and since then, by his and Professor Klapálek's courtesy, I have been put in possession of practically all the recognised European species. Those Entomologists who desire to know more about these insects should refer to Kempny's papers, "Zur Kenntniss der Plecopteren" (Verhandl. der K. K. zool.-bot. Ges. Wien, vols. 48-49, 1898-99).

13, Blackford Road, Edinburgh:
September, 1902.

NOTES ON THE OCCURRENCE, AT HASTINGS, OF THE LARVÆ OF *CLEODORA CYTISELLA*, CURT.

BY EDWARD CONNOLD, F.E.S.

About six years ago my attention was first drawn to the curled pinnules of *Pteris aquilina*, L., while searching for the little, rolled, hard, purple-coloured galls on the secondary pinnæ of the same plant, which are caused by the gall-gnat *Cecidomyia pteridis*, Müll. In each

specimen I found a small larva which had for some little distance eaten its way along the midrib, going in the direction from the apex to the centre stem, in a manner common to many leaf-miners.

Being then in search of galls, more especially than for the causes of gall-growth, I paid little attention to the specimens, and as these curled pinnules are not classed as a true gall, I made no further attempts to rear the imagines, and the larvæ perished. Each summer, however, since then I have gathered a few specimens, and endeavoured to rear the imagines, but without success, until the present season.

In the Hastings district they are not rare. I have found them in nine different localities * They are somewhat local in situation. My experience is that the moths are difficult to rear, mainly on account of the necessity of gathering the bracken fronds at the particular time necessary to ensure the emersion of the imagines in captivity, and previous failures appear to have been attributable on my part to error of judgment in that respect. The drying of the plant after removal from the rachis is another difficulty to overcome. Unless the larva is fully fed, and preparing to pupate, it will perish of starvation.

Under normal conditions it appears the larva pupates in the earth. The larvæ of the imagines I bred did not leave the plant. What length of time is passed in a state of pupation in the earth I have not been able to determine, but in confinement it is about 10—14 days. I have not found more than one larva in each affected pinnule. According to climatic conditions, and the early or late nature of the season, the last time to search must vary somewhat, but from about June 7th to 25th appears to be the best time to collect the curled pinnules, and, from June 21st to July 8th, the imagines may be expected to appear.

To any one desirous of rearing the moths next summer, I offer the following notes :—

Begin to search among the bracken as early as the last week in May. Remove each affected pinnule and place at once in a tin box, or in the customary vasculum. At the same time secure also about a handful of common moss. Upon returning home put as much earth as will fill a tea-cup on a tin or old plate, and bake it in the kitchen oven for a couple of hours. When cold, place the earth between six or eight sheets of newspaper, and with an old bottle, as a roller, crush the earth to a powder, removing all small stones and grit. Thoroughly wash the moss in several lots of water, removing all earth from the roots and stems. Procure a 2lb. jam glass, and in it put the earth. Draw off from the boiler about a pint of water, set it aside, and when cold, use enough to make the earth in the glass fairly moist. Put the remainder of the water in a clean small bottle, and cork it in the usual manner,

* The following are the localities: Guestling, Icklesham, Fairlight, Staplecross, Nisfield, Hollington, Battle, Beaufort Park, and St. Helen's Wood.

using from it from time to time to prevent the earth getting dry or caked. Now put on the earth about as much of the moss as will form a fairly compact layer about an inch thick. Examine each pinnule, holding it before a bright light, and only those in which a larva can be seen should be put in the glass. A piece of very fine tulle or muslin should be held over the mouth of the glass by a rubber band, or a piece of string. About every second or third day a few drops of the boiled water on the moss will maintain sufficient humidity to prevent the pinnules drying up, and consequent perishing of the larvæ and pupæ, but it must be watched from day to day, and the first signs of fungoid growth removed.

St. Leonard's-on-Sea :

October, 1902.

[This is a very interesting discovery, but Mr. Connold leaves us still in doubt as to whether the moth larva is the cause of the curled pinnules, or whether it only adopts those curled by a *Cecidomyia*. We hope he may be able eventually to clear up this point.—Eds.]

ON THE THORAX OF THE *GERRIDÆ*.

BY DR. E. BERGROTH, C.M.Z.S.

In describing the external anatomy of *Halobates* and *Halobtodes* (Challenger Report, vol. vii, pt. xix) Buchanan White says (p. 29): "Below no part of the metathorax is visible," and, speaking of the ventral surface of the abdomen (pp. 31, 32): "The first segment is more or less covered at the sides by the mesosternum. On the middle of it is a tubercle whose apex looks backwards and downwards, and is pierced by a somewhat transverse perforation. There is nothing, so far as I am aware, corresponding to it in any other true insect. It is possible that its homologies may be found in the 'ventral tube' of the Collembola." In the Appendix, however, the author says (p. 79) that "it is possible that what we have considered to be the first abdominal ventral segment may be the metasternum, though this seems very improbable."

This last interpretation is, however, doubtless the correct one, and if Buchanan White had carefully compared *Halobates* with the other genera of the *Gerridæ*, or if he had realized his intention to work out the family monographically, he would certainly have found it. The perforated tubercle is not a peculiarity of *Halobates*; it is typically present in the *Gerridæ* and in the *Velidæ*, although in many cases extremely small or hidden by the pubescence or by the posterior margin of the mesosternum, and is possibly wanting in the immature forms. It is very distinct in some species of *Gerris*

with whitish under-side, and in an undescribed freshwater-genus from the island of Aldabra. In the species of *Gerris* with black under-side the tubercle is very difficult to find, if it be concolorous with the surrounding surface or pubescence, but in various forms with black under-side it is of a rusty-red colour, and then at once visible. The tubercle is comparatively large and conspicuous, for instance, in the European *Velia rivulorum*, and its place is always on the segment which in the typical *Gerridæ* is unquestionably the metasternum. What Buchanan White describes as the first genital segment of *Halobates* is really the last abdominal segment, and his "first abdominal segment" is, as stated above, the metasternum. This being evident, the perforated tubercle cannot be homologized with the ventral tube of the Collembola. The use of this tubercle is unknown, but as its position and colour is sometimes of specific importance, I propose to call it the *omphalium* (from *ομφαλιον*), until its true nature is ascertained. Is it possible that in the *Gerridæ* and *Veliadæ* there is but one unpaired secretory opening to the stink-gland, instead of the two as in other families? In several cases I have found traces of a viscid fluid round the omphalium, and the reddish colour of it in some species is perhaps due to discoloration of the surrounding black pubescence by evaporation from the stink-gland.

In the genus *Cylindrostethus*, Fieb. (and possibly in a few species of *Gerris*), the metasternum apparently consists of two segments, it being divided by a more or less distinct, transverse, impressed line a little before the posterior margin. That this additional pseudo-segment is not the first ventral segment, but belongs to the metasternum, is shown by its coalescence at the sides with the hind acetabula, and by the impressed line terminating it anteriorly not reaching the lateral margin. This is clearly seen only in those species of *Cylindrostethus* having the posterior acetabula somewhat distant from the middle acetabula (I have examined *C. productus*, Spin., and two new species).

In his description of the new Gerrid *Thaumastometra Montandoni* (Rev. d'Ent., xviii, p. 87), Mr. Kirkaldy says: "segments abdominaux 2e—7e possèdent un connexivum." It is evident that what Mr. Kirkaldy has considered to be the first dorsal abdominal segment is really the metaphragma of the metanotum. The metaphragma in the apterous *Gerridæ* often has quite the form of an abdominal segment; the connexivum of the first abdominal segment in certain species being prolonged to the metascutum, so as to embrace also the sides of the metaphragma. The exact mutual position of the posterior

and the middle acetabula and coxæ, and, in the apterous forms, the shape of the metaphragma, offer good specific characters in many *Gerridæ*, although they have not hitherto been used as such by the students of this group.

In some apterous *Gerridæ* there is a remarkable dimorphism in the structure of the mesonotum. In the same species it is possible to find two apterous forms, both with well-developed genitalia: one with the pronotum more or less fused with the mesonotum and prolonged backwards in a broadly rounded process, reaching the metanotum, but with the apical margin free, at a somewhat higher level than the metanotum, quite as in the winged form; the other with the mesonotum distinctly separated from the pronotum, and the posterior process truncated at the apex, with the postero-lateral margins slightly sinuate, the whole margin of the process closely embracing the adjoining margin of the metanotum. I believe this last form, although capable of copulating, has not undergone its final ecdysis. Without knowledge of this dimorphism, one might easily be induced to describe the two forms as distinct species.

Tammerfors, Finland:

September 26th, 1902.

THREE NEW GENERA OF COCCIDÆ FROM CEYLON.

BY E. ERNEST GREEN, F.E.S., GOVERNMENT ENTOMOLOGIST.

I have been requested to establish the following genera to permit of their inclusion in the "Genera Insectorum" now in course of publication. The species will be described more fully, in their proper place, in the "*Coccidæ* of Ceylon."

ANOMALOCOCCUS, gen. nov.

Fam. ASTEROLECANIINÆ.

Allied to *Lecaniodiaspis*; but female forming no sac or test.

Adult ♀ naked. Anal ring with more than eight hairs. Other characters as in *Lecaniodiaspis*. Antennæ present; legs wanting. Anal orifice surrounded by chitinous plates. Perforate discs on dorsum.

Male puparium similar to that of *Lecaniodiaspis*, with hinged operculum behind.

The single species, at present known, occurs only in nests of an arboreal ant. It is probable that this habitat has led to the suppression of the test usual in the family.

Type: *A. cremastogastris*.

ANOMALOCOCCUS CREMASTOGASTRI, sp. nov.

Adult ♀ naked; thinly dusted with white mealy powder. Highly convex; a strongly marked median longitudinal ridge and two transverse ridges (as in *Lecanium oleæ*). Posterior extremity deeply cleft. Colour olivaceous, covered with a waxy bloom, which gives the insect a general tint of greyish-white. Antenna 8-jointed. No legs. Anal ring with twelve to fourteen stout, flattened hairs. On the dorsum, immediately anterior to the anal orifice, are numerous small perforate discs, not disposed in pairs, but irregularly scattered.



Fig. 1.



Fig. 1-a.

Long, 3.50 mm.; broad, 3 mm.

Female of 2nd stage with 6-jointed antennæ, and spatulate stigmatic spines.

Male puparium oblong, oval, convex, with an indistinct median ridge. Greyish-ochreous. A large hinged operculum at posterior extremity.

Adult ♂ castaneous. Thorax broad and depressed. Wings ample; halteres conspicuous. Genital sheath slender, pointed, about one half the length of abdomen. No caudal setæ.

Total length, 1.25 mm.

Hab.: In nests of *Cremastogaster Dohrni*, on *Ficus* sp. Peradeniya, Ceylon.

AMORPHOCOCCUS, gen. nov.

Fam. ASTEROLECANIINÆ.

Insects forming galls. Adult ♀ naked, or partially covered by second pellicle. Antennæ rudimentary. Legs wanting. Anal ring setiferous, in a shallow cleft at extremity of a pygidiform process.

Young larvæ with conspicuous 8-shaped pores on margin. Anal lobes small.

Type: *A. mesuæ*.

AMORPHOCOCCUS MESUÆ, sp. nov.

Female insect enclosed in a rounded gall, with a median apical aperture. The galls normally hemispherical, but two or more may coalesce to form an irregular mamillate swelling. Cavity of gall conical.

Adult ♀ gamboge-yellow; soft, tumescent; sub-circular, rounded below, slightly concave above; sides slightly indented at the stigmatic regions. A minute



Fig. 2.

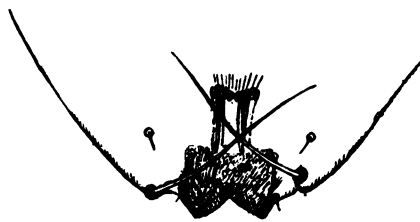


Fig. 2-a.

pygidiform process, bearing the anal aperture, projects upwards from the edge of the dorsal convexity; its extremity with a pair of stoutish setæ, usually reflexed and crossed over the ventral surface. Anal ring with six hairs, concealed in a retractile tube at base of a shallow depression, with chitinous sides. Legs wanting. Antennæ represented by minute nodular tubercles. Spiracles large, surrounded by scattered parastigmatic glands. Derm without other glandular markings. The insect is often partially enveloped in the pellicle of the previous stage, which lines the unoccupied part of the gall cavity, and shelters the eggs.

Diameter, 1.50 to 2 mm.

Male unknown in any stage.

Living insects of 2nd stage not observed.

Young larva oval, flat; pale yellow. Margin with a series of large 8-shaped pores; four similar pores on dorsal surface of thorax. These pores give rise—in the living insect—to stout, curling, glassy filaments. Legs and antennæ normal, the latter with terminal segment somewhat dilated. Anal ring with six hairs. Anal lobes small, each bearing a stoutish seta.

Hab.: On terminal twigs of the "Iron-wood tree" (*Mesua ferrea*). Kandy, Peradeniya, Ceylon.

GEOCOCCUS, gen. nov.

Fam. DACTYLOPIINÆ.

Insects subterranean; forming a more or less complete sac. Limbs present; antennæ close together, as in *Ripersia*; 6-jointed, terminal joint large. Body terminating in a pair of chitinous anal lobes as in *Eriococcus*. Derm with trilocular pores. Anal ring setiferous.

Young larva with a pair of stout chitinous spines.

Type: *G. radicum*.

GEOCOCCUS RADICUM, sp. nov.



Fig. 3.



Fig. 3-a.



Fig. 3-b.

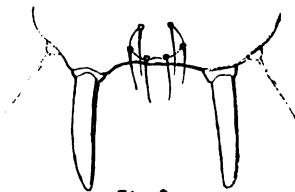


Fig. 3-c.

Adult ♀ forming brittle pulverulent white sacs, attached to roots of grasses. Broadly fusiform, narrowed at both extremities, very pale honey-yellow. Antennæ 6-jointed, their bases almost contiguous; somewhat clavate, terminal joint largest. Anal lobes densely chitinous, dark coloured, short; a stout,

tooth-like spine at extremity of each, giving it the appearance of being biarticulate. Derm with very large, conspicuous, trilocular pores disposed irregularly.

Length, 1.25 to 1.50 mm.

Hab. : On roots of grasses (and other plants ?), usually one or two inches underground. Pundaluoya, Ceylon.

EXPLANATION OF FIGURES.

Fig. 1.—*Anomalococcus cremastogastris*, side view of adult ♀, × 6. 1a.—Ditto, posterior extremity, × 100.

Fig. 2.—*Amorphococcus mesuæ*, section through gall, showing ♀ insect in position, × 6. 2a.—Ditto, posterior extremity of adult ♀, × 433.

Fig. 3.—*Geococcus radicum*, antennæ of adult ♀, × 100. 3a.—Ditto, anal lobes of adult ♀, × 100. 3b.—Ditto, dermal pores, × 433. 3c.—Ditto, posterior extremity of young larva, × 433.

Peradeniya, Ceylon :

September 19th, 1902.

Leucania albipuncta in Suffolk.—It is satisfactory to be able to record a further extension of the range of this comparatively recent immigrant in these islands. A very fine specimen, taken at sugar in his own garden at Hemley, Woodbridge, Suffolk, has been kindly submitted for my information by the Rev. A. P. Waller, Rector of that parish.—CHAS. G. BARRETT, Tremont, Peckham Rye, S.E.: September 20th, 1902.

Xanthia ocellaris at Ipswich.—Whilst Mr. Prout was looking through my small collection of *Lepidoptera* last spring he noticed a specimen of this species which I had placed with *X. gilvago*, thinking it a variety of that moth. I captured the insect at Ipswich on September 12th, 1898, whilst it was at rest on a shop window close to an electric light.—E. C. BEDWELL, 25, Ossian Road, Stroud Green, N.: October, 1902,

Hepialus humuli in the Faerøe Islands.—On July 19th, 1900, between 8 and 10 p.m., I took fifteen specimens (four ♀, eleven ♂) of the Ghost Moth (*Hepialus humuli*) at Klagevig in the Faerøe Isles. The curious point about these specimens, which are now in the Hope Collection, is that, in spite of the geographical position of their locality, they are intermediate between the typical variety of the species and the variety *hethlandica*. The wings of four of the males are pure white, those of two others are only very slightly tinged, while the remainder are comparable to the palest males in a large series of *hethlandica* from Shetland with which I have compared them in the Hope Department.—NELSON ANNANDALE, Hope Department, University Museum, Oxford: October 6th, 1902.

Variation in Lithosia deplana, Esp. (*depressa*, Esp.).—I have been a good deal interested in reading Mr. Bankes' notes on the above-named species in the October number of the Ent. Mo. Mag. (*antea* p. 229). Curiously, the only two females which I possess (both from Box Hill) are of the unicolorous *sororcula*-like variety, and I had not noticed the disagreement of this form with the published descriptions and figures. I find, however, that it does not seem to have been either figured or named; Hübner's *ochrolea*, fig. 96, and his *luteola* (*Beiträge*, i, pt. 3,

pl. 1, E) are both decidedly the grey forms with ochreous costa, and one cannot see any particular appropriateness in the names he has assigned.—LOUIS B. PROUT, 246, Richmond Road, N.E. : October 15th, 1902.

New food-plant for Melanthia albicollata.—On September 20th, while walking through a wood in this neighbourhood, I noticed the leaves of the common agrimony (*Agrimonia eupatoria*) that grew here and there by the sides of the path were much eaten, and an examination soon revealed the pretty larvæ of the above-named species, and in a short time I boxed twenty, and might have taken more had I wanted them. They were nearly full grown, and most of them were resting quite exposed on the upper surface of the leaves, though one or two were on the main stems. I cannot find this plant mentioned as being the food of the larvæ of this species in any work I have—Stainton and Buckler give raspberry and bramble. Mr. Beauchamp, quoted by Newman in his *British Moths*, says that some young larvæ took readily to wild strawberry, but that he afterwards transferred them to bramble. Meyrick gives alder, &c., in addition. Perhaps the “&c.” may include *Agrimonia*, but it is rather vague. On the 26th of same month I was again in the wood, and noticed many of the larvæ still feeding, and took a few more of the largest. I have taken the moths in several woods in this neighbourhood, but it is far from common, or is of retiring habits. The larvæ appear to feed chiefly at night.—GERVASE F. MATHW, Dovercourt : October, 1902.

Occurrence of Panolis griseovariegata, Goeze (piniperda, Panz.), in June.—As one, out of many instances that have come under my notice, of exceptionally late appearances of *Lepidoptera* during the present backward season, it may be worth mentioning that, on June 11th last, I beat out from Scotch fir, and secured, an example of what is familiarly known as *Panolis piniperda*, Panz., but which, as we learn from Staudinger and Rebel's “Catalogue” (1901), must in future be known by its earlier name, *P. griseovariegata*, Goeze. The specimen is a female, and is rather worn, but one can hardly expect to find an April species in the very pink of condition in the middle of June.—E. R. BANKES, Corfe Castle : August, 1902.

Lestes Dryas, Kirby (nympha, Selys), in Lincolnshire.—On July 23rd of this year the Rev. A. Thornley of South Leverton forwarded to me two dragon-flies taken a few days previously by Miss Stow from a pond at Brandon, near Grantham. I took them to be *L. Dryas*, Kirby, and my naming was subsequently confirmed by Mr. G. T. Porritt, to whom I showed the specimens. I went down to Brandon on August 21st following, and took nine more *Lestes* from the same pond; these I sent to Mr. McLachlan, and one of them (a male) he says is “certainly *Dryas*,” and the remainder *sponsa*. The pond, which is called “Doubleday's,” is only a few square yards in area, situated in the middle of a grass field, and is nearly filled up with tall weeds on which the *Lestes* were resting.—ELAND SHAW, North Leverton, Notts. : October 7th, 1902.

Abundance of Aeschna mixta in South Devon.—That *Aeschna mixta* is thoroughly established on the South Devon coast, and probably has been for many years, seems evident from the fact that I have found it plentifully there during the past three

seasons. This year it was especially abundant, and seemed to occur in all localities having suitable aquatic conditions, for many miles, as far as Torcross (where it was abundant), the furthest point I worked. It is a very pretty object when on the wing, but rather difficult to catch, and my best morning's work, on September 19th, only produced seven to my net. The only other dragon-flies noticed in the district were *Sympetrum striolatum*, *Cordulegaster annulatus*, and *Ischnura elegans*, the first mentioned in great abundance.—Geo. T. PORRITT, Crosland Hall, near Huddersfield: October 9th, 1902.

Does Sympetrum scoticum hibernate?—In the "Revue des Odonates d'Europe" the late Baron de Selys-Longchamps says (p. 49) concerning this species:—"J'ai pris quelques exemplaires au commencement du printemps; peut-être avaient-ils hiverné." Later on in the same work when treating on *Sympycna fusca*, and alluding to it as the only Odonate that can be said, with certainty, to hibernate, he adds (p. 163):—"Je me souviens cependant d'avoir trouvé en avril des *Libellula scotica* très-adultes, que j'ai supposé aussi avoir passé l'hiver." I do not remember to have seen these statements alluded to by succeeding writers, but it is quite possible some such notice may have escaped me. In any case it seems desirable to call attention to the subject as a guide to observers.—R. MCLACHLAN, Lewisham, London: October 8th, 1902.

A few Trichoptera from West Cornwall.—During a second visit to Cornwall which I paid in May last, I was able to add somewhat to my former list of *Trichoptera*, and to give additional localities (see ante p. 112). *Limnophilus auricula*, Curt., Trewoofe, Marazion, *L. vittatus*, F., Trewoofe, *L. centralis*, Curt., Flushing, near Falmouth, *L. hirsutus*, Pict., Falmouth; *Silo pallipes*, Curt., Penzance, Budock; *Crunecia irrorata*, Curt., Flushing; *Tinodes assimilis*, McLach., Flushing; *Philopotamus montanus*, Dou., Boleigh, Penzance; *Wormaldia occipitalis*, Pict., Penzance, Flushing; *Polycentropus flavomaculatus*, Pict., Penzance, Flushing; *Rhyacophila dorsalis*, Curt., Lamorna Cove; *Agapetus fuscipes*, Curt., Penzance, Flushing.—W. C. BOYD, The Grange, Waltham Cross: September 15th, 1902.

On a nest of Formica sanguinea and other Hymenoptera near Wellington College.—The following particulars of a nest of the above species which I found near Wellington College on September 6th may be of interest to some of your readers. The nest was only indicated by a small burrow in the railway bank, from which from time to time issued workers of *F. sanguinea* (I may mention that it was a very cold dull day), which had a run round and then entered the nest again. This was composed of the rotten fibre of a fir tree root, and penetrated to the depth of about a foot into the bank. I dug the nest out and collected from it the following:—28 *sanguinea* ♀, 4 of which were immature, 1 *sanguinea* ♀, 5 *fusca* ♀, 4 wingless, 1 winged; *Lasius umbratus* ♀, 9 wingless, *niger* ♀, 2 wingless, and pupæ of *sanguinea* in all stages. The ants seemed very sluggish, and were I suppose preparing their winter quarters. *Methoca ichneumonides*—I found a ♀ of this species dragging a very small sandfly towards a burrow from which I was taking *Mellinus arvensis*. I think it must have intended to enter the burrow, as having slipped three or four

times in the sand with its burden, it invariably started afresh on the same route. *Cerceris arenaria*—I found, on dragging out the cells of this species, 17 weevils of the common grey kind so common on the heaths. *C. ornata*—I have always found this taking home a small *Halictus* of some kind, but on one occasion to my surprise it brought an *Andrena argentata*. *Ammophila sabulosa* stores Noctuid larvæ (such as *P. piniperda*, *A. agathina*, &c.); *A. campestris* Geometrid larvæ, but on one occasion I found it with the larva of *Noctua tritici*.—W. BARNES, Brightwell Villas, New Road, Southern Hill, Reading: October, 1902.

Ants displaced by Woodlice in New Zealand.—The Rev. A. E. Eaton, in his gentle critique on my note on this subject (*ante* p. 160) was right in assigning the woodlouse I referred to to *Porcellio scaber*, Latr., not *P. graniger* as given by me. Six months before despatching my note to this Magazine I read a short paper on *Mopoda vegetans*, De Geer, before the Philosophical Institute of Canterbury, N. Z., and had occasion to refer to the destructive Mopod, when Dr. Chilton, F.L.S., the able specialist on New Zealand Crustacea, was good enough to correct the nomenclature for me; the error, therefore, was twice repeated. *Porcellio scaber* has been known in New Zealand for forty years, and many years before there was any direct communication with other countries than England (excepting perhaps during the early whaling times), which induced me to write of it as an English species. Although it is now almost cosmopolitan, the colonists are wont to speak of all invaders of its class in New Zealand as being of English origin.—W. W. SMITH, Ashburton, N.Z.: August 25th, 1902.

Formica exsecta in South Devon.—During a short stay in South Devon in August last I paid several visits to Bovey Tracey in quest of Aculeate *Hymenoptera*. In previous years I had found this place a very fruitful collecting ground, it having yielded several rare and interesting species with which I was anxious to make further acquaintance. While searching over the heath, on August 11th, I came across an ants' nest constructed of fir needles, pieces of dry grass, &c., very like that of *Formica rufa*, Linn., but much smaller, being hardly so big as a half gallon measure. The ants were not *F. rufa*, as they were certainly too red for that species. I took several dozen for further examination, as I could not remember the specific difference between the two species, to one of which it appeared certain that they must belong, viz., *F. sanguinea*, Ltr., and *F. exsecta*, Nyl. I was surprised upon examination to be unable to make them anything except *F. exsecta*, Nyl., a species I had hardly hoped to find, especially in a place so far from the original and only locality in Britain (near Bournemouth) where it used formerly to occur. In June, 1898, however, it was discovered in the New Forest by Mr. R. C. Bradley (*loc. cit.* vol. xxxv, p. 14). The species has been keenly but unsuccessfully sought for so long a time that many naturalists had begun to think we had lost this interesting ant from our fauna. I have to thank Mr. Edward Saunders for kindly confirming my identification.—A. H. HAMM, 22, Southfield Road, Oxford: October, 1902.

Aculeates at Colchester in 1902.—In spite of the cold, wet season, *Aculeates* have been numerous in this district, and many good species have been obtained.

Nomada fucata occurred during May about the burrows of *Andrena fulvicrus*, a species very common here. *Sphæcodes spinulosus* ♂ was found flying along hedges in the hottest sunshine early in June, and *Odynerus gracilis* occurred in woods. The end of July and early August proved most prolific: *Nysson trimaculatus*, *N. dimidiatus* and *Hoplisus bicinctus* (1) were taken in a garden near the town, while further out we obtained *Andrena Hattorfiana*, including specimens of the red variety of the ♀, not taken here since 1887; several *Nomada armata* ♂, *N. lineola* and var. *cornigera*, *N. jacobææ*, *Agenia hircana* (1), *Andrena nigriceps* ♂ and ♀, *Dasypoda hirtipes*, *Calicurgus hyalinatus* (two ♂), *Harpactus tumidus*, *Stelis phæoptera*, *Nomada obtusifrons* (on mustard flowers), and last but not least, both sexes of *Odynerus reniformis*, of which we had previously taken a single specimen only.—BERNARD SMITH HARWOOD, Station Road, Colchester: October, 1902.

Aculeates in North Wales.—This season I paid four short visits, practically week ends, to Barmouth, and although the weather was on the whole anything but ideal from a collecting point of view, some interesting species were taken.

My first visit in May was almost a blank as far as *Aculeates* were concerned, owing to cold and wet, the only species worth noting being *Nomada bifida*, *lateralis*, and a fine ♀ *Andrena lucens* from Llanbedr.

On my second visit, end of June, the weather was so exceedingly hot that my son and self were completely knocked up on the Pensarn sand-hills. We found *Pompilus rufipes* very lively and variable, some specimens having almost black legs and no spots on the abdomen. *P. approximatus* was scarce, only 5 taken. *Gorytes tumidus* (3). *Caliozys acuminata*, *Osmia aurulenta*, and many others. The walls around Barmouth yielded a nice series of *Sapyga quinquepunctata*, 25 ♀s, but only 1 ♂, along with it *Agenia variegata* occurred, very agile and difficult to capture, dodging in and out of the crevices. *Osmia cerulescens* and *Stelis aterrima* on posts. On the sand-hills *Tachytes pectinipes* was very common; dozens were taken in the hope of getting *Astata stigma*, but without success; but 3 *T. unicolor* fell to our share.

On my third visit, August 1st, we worked very hard for more *Agenia variegata*, and ultimately totalled 20 specimens, 4 of which were ♂s. Five specimens of *Panurgus ursinus*, ♂s, were found asleep in dandelion flowers, and on the sand-hills a small series of *Mimesa unicolor*, and 2 *Oxybelus mucronatus* were taken.

On my last visit *Panurgus ursinus*, ♀s, were found freely in the Railway Station grounds. Three hours at Towyn in semi-bright weather were fairly successful, considering we had to sweep for our insects, the principal captures being *Oxybelus mucronatus* (10), *Mimesa unicolor*, *Ceropales maculatus*, *Cerceris arenaria*, *Crabro Wesmæli*, *Tachytes unicolor*. A short spell at Crickieth in similar weather produced similar insects to Towyn, with the addition of *Anthidium manicatum* and 6 specimens of *Ammophila hirsuta*, which differ somewhat from the normal form, the ♂s having a shorter petiole and a trace of red on the base of the femur; curiously the ♀s were much worn and the ♂s quite fresh. In the neighbourhood of Maentrog we found *Andrena denticulata* and *Nomada solidaginis* commonly, and single specimens of *Agenia variegata* and *Crabro dimidiatus*. In a future note I hope to say something about the *Diptera* taken.—RALPH C. BRADLEY, Moseley, Birmingham: October, 1902.

Lamostenus complanatus, Dej., at Plymouth.—The beetles which I recorded in this Magazine in May, 1899 (p. 118), as *P. terricola* are, I now find, referable to the above-named species. They were included in my note at that time (as mentioned therein) on account of their small size and the peculiarity of the habitat in which they were discovered; the specimens having been found at rest in a deep crevice in a tree which had been blown down by a storm on the day prior to my visiting it. When the tree was standing the beetles would have been at an altitude of some twelve feet from the ground. Being possessed of ample wings, may it be, therefore, that *L. complanatus* is more or less arboreal in habit? I have also an example of *L. complanatus* from Mr. J. J. Walker, taken in Sheppey in 1898 or 1899.—J. H. KEYS, Plymouth: October, 1902.

A colony of *Hister merdarius*, F.—*H. merdarius* is, judging from the records, usually a scarce species in this country, and it may therefore be of interest to mention that I have recently come across a colony of it. The site is a small enclosure by the side of the River Lea, near Broxbourne, Herts, close to a lock-keeper's cottage. The soil in this place is a warm, damp, evil-smelling compound, the upper surface of which is formed of large lumps; it is no doubt the residue of a heap of gas-lime deposited from a passing barge. On the top of this stuff, which was riddled with borings, a quantity of vegetable refuse from the adjacent house had been thrown, the whole appearing an attractive habitat for beetles occurring in such situations. The *Histers* were found in the warm soil under the clods; two species occurred, of which *H. merdarius* was by far the commoner, there being probably between fifty and sixty specimens present, besides numerous grubs, which I believe were its larvæ; the other species was *H. 12-striatus*. *Acrilus minutus* also occurred, together with two species of *Cercyon*, *Eumicrus tarsatus*, *Aphodius granarius*, and *Trox scaber*, but *Staphylinidæ* were not numerous. I had only once previously met with *H. merdarius*, this being a single individual found in a fungus trap in Epping Forest, July, 1899, in company with *H. succicola*.—F. B. JENNINGS, 152, Silver Street, Upper Edmonton: September 17th, 1902.

Stenostola ferrea, Schrank, at Barmouth.—Last May I found a single specimen of *Stenostola ferrea* by beating an elm at Barmouth; it has not apparently been before recorded from Wales: and at Bettsw-y-coed I captured four specimens of *Pachyta cerambyciformis* in a marshy wood at the end of June.—J. KIDSON TAYLOR, 2, South Terrace, South Avenue, Buxton: September, 1902.

Gnorimus nobilis near London.—In July last, at the beginning of the month, my daughter sent me a specimen of this rare beetle; she found it walking across her dining room table. She lives at Little Ealing, and there are a good many fruit trees in the garden close to the house.—ARTHUR COTTAM, Eldercroft, Watford: October, 1902.

Omalius septentrionis, Thoms., in Cumberland.—This rare beetle has occurred this year in south-east Cumberland in considerable numbers, being found in old carrion upon which was a growth of some minute fungus, which appeared to be what the beetle was feeding on. According to Canon Fowler (Brit. Col., vol. ii, p.

413) it has hitherto only occurred north of the Cheviots.* Mr. Newbery and M. Fauvel have kindly confirmed the identification. The close and strong punctuation of *O. septentrionis* readily separates it from *O. rivulare*.—FRANK H. DAY, 17, Thirlmere Street, Carlisle: October 7th, 1902.

Metallites marginatus, Steph., on birches near Henley-on-Thames.—In my account of this species (Col. Brit. Islands, v, 198) I have said that it occurs on broom and juniper, and also that "the species has recently been found in France on the birch." On April 24th last I began to beat some young birches in a wood which were only just bursting into leaf, and found this insect in great profusion; a little later, when the leaves were fully out, it was much scarcer, and its place was apparently taken by *Polydrusus cervinus*. I never found the species until I came to this locality; here, in the early spring, it appears to be the commonest of the *Curculionida*.—W. W. FOWLER, Rotherfield Peppard Rectory, Henley-on-Thames: September 17th, 1902.

Saperda scalaris, L., at Bretby Park, Derbyshire.—Canon Cruttwell has asked me to record the capture of a specimen of *Saperda scalaris* by Mr. N. E. E. Frampton in Bretby Park, Derbyshire. I once took a freshly emerged specimen in Robin's Wood, which is only two or three miles from Bretby, and the late Mr. W. G. Blatch recorded the species in 1889 from Sherwood Forest; these are the only Midland records of the species, which has been chiefly found in the Manchester district, where it has been taken in some numbers; it has also occurred in the Northumberland and Durham district.—ID.: September 18th, 1902.

Otiorrhynchus ligustici, L., at Matlock.—In "The Coleoptera of the British Islands," vol. v, p. 178, I have quoted a record sent me by Mr. Chappell of the capture of *Otiorrhynchus ligustici* at Matlock. Mr. Kidson Taylor has lately written to me saying that he can confirm this record, as he took a specimen last July by sweeping in a field not far from the town, which was carpeted with *Anthyllis*. I have only seen one living example of this very rare weevil, and this I took at the roots of *Anthyllis* near Sandown, Isle of Wight, some years ago.—ID.: October 10th, 1902.

Nabis brevis, Scholtz, and other Hemiptera at Woking.—On the 30th of last August I re-visited the locality where I captured a single ♂ of the above species on August 25th, 1900 (see Ent. Mo. Mag., xxxvi, p. 227), and was rewarded by two more of the same sex. I returned to the same spot again on September 20th and 25th and captured several of both sexes, as well as about a dozen of *Corizus maculatus*, Fieb., a few *C. parumpunctatus*, Schill., *Picromerus bidens*, Linn., *Cymus melanocephalus*, *Thamnottetix cruentata*, Pz., *T. crocea*, H.-S., and *Gargara genistæ*, F. The locality lies along the side of the Woking Canal between Byfleet and its junction with the Wey Navigation; all the three extremely closely allied species of the little section of *Nabis*, to which *brevis* belongs, occur here, *rugosus*, L., and *brevis*, Scholtz, on the more grassy parts, *ericetorum*, Scholtz, on the adjoining heather; and yet each of these three species exhibits characters in the net whereby

* *O. septentrionis* has been recorded by Blatch from Knowle, Warwickshire (Ent. Mo. Mag., xxvi, p. 37 (1890)).—G. C. C.

it may be easily distinguished—*rugosus* being the widest and palest, *brevis* the smallest and greyish, and *ericetorum* the darkest, narrowest and reddest. To me they are far more difficult to separate when set out; but the males can always be known by the form of the genital styles.—EDWARD SAUNDERS, St. Ann's, Woking: October 10th, 1902.

Ctenophora flaveolata, F., in the New Forest.—I was fortunate in capturing this year, in the New Forest, two specimens of the rare Dipteron, *Ctenophora flaveolata*, male and female. Specimens in the British Museum were captured by Turner in 1853, and by Doubleday in 1859.—HERBERT ASHEY, Pinehurst, Basset, Southampton: October 12th, 1902.

Reviews.

A NATURAL HISTORY OF THE BRITISH LEPIDOPTERA, A TEXT BOOK FOR STUDENTS AND COLLECTORS: by J. W. TUTT, F.E.S. Vol. iii, pp. 558 8vo. London: Swan, Sonnenschein and Co. Berlin: Friedländer und Sohn. 1902.

The third volume of this work has now appeared. It is of the same exhaustive character as those which have preceded it, as may be inferred from the fact that in its 558 pages only thirteen species are described, i. e., the remainder of the "*Lachneides*" (*Lasiocampa quercus*, &c.), *D. versicolera*, *S. pavonia*, the three species of the old Smerinthid genus, and the two British "Bee-Hawks," *H. fuciformis* and *H. tityus* (*bombylifomis*). As an example of the author's exhaustive treatment, *L. quercus* may be cited. All Lepidopterists know the vast amount of discussion that has taken place since the var. *calluna* was introduced about 1847 as a distinct species. The immense amount of information since obtained as to the habits of this species in different regions of Europe and Asia is brought together and discussed in about 80 pages, in a manner which seems to leave scarcely anything more to be said. It would be an error, however, to suppose that the volume is limited to descriptions of the thirteen species and their many varieties and recorded aberrations, their life-histories, habits and localities. These, indeed, are given in very great detail; but the relations of the species found in our islands to those found in the rest of the world are always kept in view, and the result is that a very large proportion of the 558 pages is devoted to information and discussions of as much interest to Continental and American Lepidopterists as to our own. In this connection I would draw attention to the frequent observations on the conjectured phylogeny of the species, and of the genera, families, &c., to which they belong, and on their proper places in a classification based on the observation of the insects in all their stages. A knowledge of these is of course essential for this purpose, seeing the different traces of their probable origin which they bear in these stages, and the diversity of the directions in which, in these several stages, owing to the entirely different lives they lead in them, they appear to have evolved. As regards phylogeny in general the observation at p. 359 is deserving of being well weighed. The passage is too long to quote, but it comes to this, that what we call the "lowest" members of a stirps are as many generations from the common stock as the "highest" are; we may construct a hypothetical ancestor, having all the generalized but none of the specialized characteristics of a group, the members of

it having specialized in different directions, so that no existing form can be supposed to be derived from any form now existing. I am so thankful for the great labour which has been expended by the author and his coadjutors in obtaining and recording, with the necessary accuracy required, the detailed information contained in the work, that I do not like to suggest that if even more labour could have been given the value of the work might have been greater still. But when I find that such a common and widely distributed species as *C. potatoria* has more than five closely printed pages devoted to dates and localities of capture in the British isles, I cannot help thinking that a compressed and classified summary, which need not have occupied more than half a page, would have been preferable. There are other cases also in which it appears to me that compression and condensation would have been usefully employed. Even if Mr. Tutt agrees in this opinion, his answer might be that of the accomplished letter writer who accounted for the length of his communication by saying that he had not time to write short; if this be so, it is greatly to be regretted, and one is all the more glad that he has had, and will we hope for the succeeding volumes have, the valuable co-operation of such excellent and thoughtful observers as Dr. Chapman, Mr. Bacot and Mr. Prout, whose aid he acknowledges so heartily.—F. MERRIFIELD.

SECOND REPORT OF THE (NATAL) GOVERNMENT ENTOMOLOGIST, 1901: by CLAUDE FULLER. Pp. 72, 8vo. Pietermaritzberg. 1902.

At *ante* p. 134, we had occasion to notice Mr. Fuller's First Report. Like it the Second is fully one half occupied by fungi and kindred subjects. We think it a great improvement on the First, got up more in the official Blue Book style, better printed, and with much better illustrations. Its thinness compared with its predecessor the Reporter explains by saying that, to a large extent, it is supplementary thereto. One or two points are of special interest. When writing on the "Mealie" grub (larvæ of *Seamia fusca*, Hampson), it is stated that one of them lived 193 days without food, and then commenced burrowing into the soil as soon as an opportunity offered. The chapter on the fruit moths (of which *Sphingomorpha chlorea*, Cramer, is figured as an example) is very important; in the First Report the author appeared to show a leaning towards the idea that the moths do *not* puncture the fruit, but take advantage of the punctures made by flies. In this Report the leaning is quite the other way; nevertheless, he says the evidence is still not sufficient to enable him to form a definitive opinion; but he figures a section of a peach, in the skin of which punctures made by the moth and cavities containing eggs of the fly both exist in the same fruit. Appendix A consists of a draft of a Bill to check the introduction of Insect Pests and Plant Diseases.

Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, August 14th, 1902.—Mr. F. NOAD CLARK, President, in the Chair.

Mr. Edwards exhibited ova of *Anthrocera trifolii* from Byfleet. Dr. Fremelin said that during a recent visit to the Isle of Man, he had taken *Dianthæcia cæsia* and larvæ of *Polia xanthomista*, v. *nigrocincta*. Dr. Chapman, specimens of *Nemoptera bipennis* (*lusitanica*) from Bejar in Spain.

August 28th, 1902.—Mr. E. STEF, Vice-President, in the Chair.

Mr. Edmund J. Riley, of 94, Drakefell Road, Upper Tooting, was elected a Member.

Mr. South exhibited a series of *Apamea ophiogramma* bred from larvæ taken in his garden at Tooting. Mr. Turner, a short series of *Agrotis ripæ* bred at the end of June, 1902, from larvæ taken in August, 1901, at Dawlish. The variation was very considerable, from very snowy forms to an exceedingly dark example. Mr. Bowman, a large number of species of the genus *Erebia*, including series of *E. Zapateri* from Spain, and *E. Christi* from Switzerland; he also showed a series of *Melanargia Lachesis*. Mr. South, ova of *Tortrix piceana* from Oxshott, and of *Retinia pinicolana*. Mr. Adkin, several masses of cocoons of a species of *Apanteles* which had emerged from the larvæ of *Boarmia gemmaria* in his garden. A discussion ensued as to the cause of the curious curved position of the larval remains over the cocoons. Dr. Chapman, a specimen of *Scoliaula (Bohemannia) quadrimaculella* from Reigate.

September 11th, 1902.—Mr. F. NOAD CLARK, President, in the Chair.

Mr. South exhibited a series of *Pygæra curtula* bred from ova laid by a ♀ taken at Blatchworth. The imagines were all small and dark, and it was suggested that the food, sallow, instead of poplar, was the cause. Mr. Turner, two Longicorn *Coleoptera* taken by Mr. Tutt at Torre Pellice, viz., *Cerambyx heros (Cerdo)* and *Purpuricenrus Koehleri*. Mr. Kemp, numerous species of *Coleoptera* taken in the New Forest in August, including *Prionus coriarius*, *Halysia 16-guttata*, *Abdera bifasciata*, *Bembidium decorum*, *Tomoxia biguttata*, and *Deronectes latus*. Dr. Chapman, examples of the *Hesperid*, *Heteropterus Morpheus*, from St. Jean de Luz, and cases and imagines of the *Psychid*, *Oreopsyche Leschenaulti*, from San Sebastian.

September 25th, 1902.—The President in the Chair.

Dr. Chapman exhibited typical examples of *Euchelia jacobææ* bred from larvæ found at Bejar, and stated that the black bands or rings of the larvæ were broken into four black marks. Mr. Kaye, a short series of *Leucania albipuncta* from the Isle of Wight, taken this year. Mr. Kirkaldy, a remarkable case of insect mimicry in a number of Brazilian *Rhynchota*, *Mabetia pulcherrima*. A new species of *Miridæ* was shown with the *Pyrrhocorine*, *Theraneis oleosus*, from Costa Rica, and *T. luridus* from Brazil. Mr. Kemp, species taken by him at various Field Meetings of the Society:—Wisley, July 5th, *Coleoptera*: *Donacia thalassina*, *Paderus riparius*, *Agrilus angustulus*, *Xyleborus dryographus*, and *Antherophagus nigricornis*. *Odonata*: *Orthetrum cærulescens*. Epping Forest, September 20th, *Zygophora flavicollis* and *Ilybius fenestratus*. Oxshott, September 6th, *Coleoptera*: *Hydaticus seminiger*, *Pelobius tardus*, *Ilybius ater*, *Rhantus bistriatus*, *Bidessus geminus*, *Hydroporus tristis*, *H. umbrosus*, and *Calambus impresso-punctatus*. Mr. Lucas, a coloured sketch of a var. of *Asphalia ridens* bred from the New Forest. The contrast of light and dark markings was unusually strong. He also showed a specimen of a very rare Dipteron, *Physocephala nigra*, and a ♀ of *Ectobia lapponica* with its egg capsule, which it had carried protruding for 5 days before dropping it. Mr. Colthrup, *Lasiocampa quercus* vars. (1) with splashes of yellow at base of fore-wings, (2) ♂ with ♂ antennæ and wings, but body showing ova

through abdomen, (3) having yellow band on hind-wing extending to fringes; and also *Agrotis corticea* with a white submarginal band on the fore-wings. Mr. Lucas read the Report of the Field Meeting held at Wisley on July 5th, and exhibited lantern slides to illustrate his remarks.

October 9th, 1902.—The President in the Chair.

Mr. Jennings exhibited four rare species of *Coleoptera*: *Cathormiocerus socius* from Sandown, Isle of Wight, *Gymnetron linariae* from Southport, *Baris lepidii* from Edmonton Marsh, and *Hister merdarius* from Broxbourne. Mr. Kemp, examples of *Carabus violaceus* v. *exasperatus* from N. Cornwall and the New Forest. Mr. R. Adkin, a *Cossus ligniperda* from the same fence referred to in the "Proceedings" for 1889 and 1900, and read notes. Dr. Chapman, imagines, pupæ and cocoons of *Hyboecampa (Notodonta) dryinops* from Queensland, and compared the species with *H. Milhauseri*. He pointed out the spike of the pupa in both cases, by which it drills a series of holes and thus weakens the cocoon for exit. Mr. South, four aberrations of *Lycæna Corydon*: (1) a ♀ with blue hind-wings and a black discal spot on fore-wings, (2) under surface of the fore-wings unusually white, (3) and (4) var. *syngrapha*; all were from Wiltshire, taken by the Rev. C. A. Sladen. Three aberrations of *L. Icarus*: (1) ♀ from Eastbourne with elongate spots on the under surface of fore-wings, (2) ♀ very blue from Oxshott, (3) ♀ blackish, shot with blue at base, from Horsley. *L. minima*, devoid of markings on the under surface, from Swanage. *Ematurga atomaria*, a melanic ♂ from Bourne-mouth. *Gonosoma pendularia*, 4 specimens from Market Drayton of a dark grey form, said by Mr. Woodforde to be typical of the district; and a specimen of *Pyralis Lienigialis* taken near Oxford, August 22nd, 1902.—H. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: October 1st, 1902.—The Rev. Canon FLOWER, M.A., D.Sc., F.L.S., President, in the Chair.

Mr. H. St. J. Donisthorpe exhibited specimens of *Dibolia cynoglossi* taken by him near Pevensy on the 11th August last. He said that the beetle had not been recorded as British since 1866. Mr. O. E. Janson, a fine hermaphrodite specimen of *Dryas Paphia* taken in the New Forest by Mr. Herbert Charles on July 28th, and recorded in "The Entomologist;" also a melanic specimen of *Papilio Demoleus* from Ceylon in which all the usual marginal and sub-marginal yellow markings were absent and the discal markings much obscured; on the under-side the yellow markings were entirely wanting. Mr. C. P. Pickett, a ♂ *Callimorpha dominula* with the hind-wings suffused with black, and an extra black spot in the centre, the white spot on the fore-wings being absent; and a very large ♀ of the same species, both bred from larvæ found at Walmer at the end of March; and three aberrant specimens of *Triphæna fimbria* bred from larvæ taken at Wood Street during the same month. Mr. C. O. Waterhouse, specimens of a wasp, *Zethus chalybeus* and a Neuropteran *Mantispa semihyalina* received with a collection of *Hymenoptera* from Rio Janeiro suggesting a curious case of mimicry. Mr. F. B. Jennings, specimens of *Hister merdarius* from Broxbourne, Herts., part of a large colony of this usually scarce species found with *Hister 12-striatus* and other beetles inhabiting a heap of a chemical substance, probably gas-lime, in which

also many larvæ presumably of *Hister merdarius*, and burrows, were observed. The soil was warm and moist, and this, and the presence of a quantity of vegetable refuse thrown on the heap, was no doubt the attraction to the *Histers* to settle there. Mr. A. J. Chitty, a specimen of *Metacus paradosus* with a part of the cells of a nest of *Vespa vulgaris*, in which place the beetle is invariably found. The beetle in the cell tucks in its head, only displaying the surface of the thorax, which is coloured similarly to the face of the wasp. This peculiarity suggests a case of mimicry, and Professor Poulton said that it fitted in with the case of some other bees and wasps. Mr. H. Rowland-Brown, on behalf of Mr. G. F. Leigh, of Durban, a ♂ and ♀ specimen of a rare Noctuid, *Musgravia Leighi*, Hampson, discovered by him in Natal, and read remarks upon the life-history of the species, communicated by the captor. Mr. Stanley W. Kemp, two recent additions to the British list of *Coleoptera*, *Bembidium argenteolum*, from Lough Neagh, Armagh, and *Læmostenus complanatus* from the neighbourhood of Dublin, taken in June, 1902. Mr. W. J. Kaye, examples of *Heliconius Lindigii*, *Heliconius Antiochus*, and *Morpho Achilles* from British Guiana, with notches taken out of the hind-wings, presumably by birds; to illustrate that these distasteful or warning-coloured species are subject to attack, this helping to show that experimental tasting as propounded by the Müllerian theory of mimicry does exist and go on. Professor L. C. Miall, F.R.S., communicated a Paper by Mr. T. H. Taylor, M.A., entitled, "The Tracheal System of *Simulium*." Professor Auguste Forel, M.D., communicated a Paper entitled "Descriptions of some Ants from the Rocky Mountains of Canada (Alberta and British Columbia) collected by Edward Whympet." Dr. T. A. Chapman, F.Z.S., read a Paper entitled "On *Heterogynis paradoxa*."—H. GOSS and H. ROWLAND-BROWN, *Hon. Secretaries*.

ALGERIAN BUTTERFLIES IN FEBRUARY, MARCH AND APRIL, 1902.

BY MRS. MARY DE LA B. NICHOLL, F.E.S.

Although Algeria is visited every winter and spring by numerous tourists, many of whom are entomologists, yet there is not, to my knowledge, any complete work published on the *Lepidoptera* of the country. M. Oberthür's valuable papers contained the best, almost the only, information that I was able to procure, but as these are published in various volumes of the Annales of the French Entomological Society, I had great difficulty in making out any sort of catalogue of the insects I might hope to find during February and March; and my ideas as to the appearance and habits of the rarer ones were singularly vague. I had no book of any kind with me, so I made several extraordinary mistakes about my captures.

May and June might be profitably spent in the mountains, which occupy a great part of the country, and are too high and cold to produce any butterflies of much interest in March, or even in April. The Atlas range, which extends along the whole coast of North Africa

from the Atlantic on the west to Tunis on the east, is called by various names in various districts, and is divided into many distinct groups. But the mountain wall will everywhere be found between the Mediterranean and the Sahara, sometimes expanding into a broad table land, 3000 feet in height and from 20 to 30 miles in width, and sometimes, as in the province of Oran, narrowed into ridges, whose higher summits command alike the Sahara and the Mediterranean.

As far as I could make out this great range divides the whole of Algeria into two distinct zones of climate, in which the flowers and insects differ greatly. The northern slopes, whose waters fall into the Mediterranean, get a good deal of rain and much fog. The vegetation is most luxuriant, much resembling that of Southern Spain or Italy, and the butterflies are much what might be met with along the shores of the Western Mediterranean. The southern side of the watershed, whose rivers flow into the Sahara, presents a very different appearance. Bare and rocky ridges rise from sandy or stony levels; near the streams and in the lower valleys are lovely oases of palm trees and fruit orchards and corn fields, but the intervening country is mainly clothed with prickly shrubs, if indeed it can boast of any vegetation at all. Yet amid the stones and sand bloom flowers quite unlike those of the European flora, and on these rocky ridges, unpromising as they look, *Teracolus Nouna*, *Euchloë Pechi*, and *E. Falloui* are to be found.

Between the Tell and the Desert, north-east of Biskra, rise the Aurès, the highest mountain group in Algeria; several of their summits attain a height of 7500 feet and upwards, and these are white with snow as late as mid April. All the Aurès valleys possess beautiful snow-fed streams flowing southwards to the thirsty sand, which presently swallows them up. Of the insects of this district little or nothing is known, and I greatly regret that I can add nothing to our knowledge, for although I spent fourteen sunny days of March in exploring the main valleys, it was then too early, even for the flowers.

The warmer portions of Algiers are, however, the best butterfly quarters that I have ever visited in February. Miss Gilbertson and I landed at Algiers on February 6th, and stayed there three days. We joined Miss Fountaine, and made excursions to several promising fields and copses behind Mustapha Supérieur, taking a good many common Mediterranean insects, and one or two fresh specimens of *Thestor mauritanicus*. *G. Cleopatra* was abundant, and *L. argiolus* already on the wing. Then we went to Constantine, where there is very good collecting ground close to the north-east side of the town.

On February 11th I took there many *Thestor Ballus*, one *T. mauritanicus*, many *E. Belia*, *C. Phlæas*, *V. polychloros*, &c. After this date we had very cold and windy weather, and took nothing of interest at Tunis, Carthage and Kairouan. On the 21st we arrived at Biskra in a thunderstorm, and there rejoined Miss Fountaine, who had remained at Algiers and caught nothing remarkable in our absence. It blew a gale all the next day, but February 23rd was lovely, so we made an excursion to the Col de Sfa, a pass in a sharp rocky ridge about five miles north of Biskra, a good collecting ground, though the mountains are very steep and barren. We took some beautiful specimens of *Euchloë Charlonia*, quite fresh, and plenty of *E. Belia* and *E. Belemia*, as well as several var. *glauce*. It struck me as remarkably early to get var. *glauce*, which is generally considered to be the summer brood of *Belemia*. We also saw *P. Machaon*, but it was flying so wild, in consequence of the high wind, that we none of us took any, so I could not be sure whether it was Oberthür's var. *hospitonides* or not; subsequently, however, we took several, and I am unable to see that they vary much from the type. Next day we went to the ridge above Hammam-es-Salahin, to the west of Biskra, and found much the same insects as on the Col de Sfa, with the addition of *L. bætica*. The day following we devoted to the Biskra park of Beni Mora, a very nice place, well watered, with grass, bushes, weeds and palm trees. It would be excellent collecting ground if it were not so close to the town, but it is perpetually haunted by entomologists in delicate health, who take their regular morning stroll there, and pick up the rarer *Lepidoptera* as soon as they appear. However, we did fairly well, and caught plenty of *E. Charlonia* and *E. Belemia*, one *L. Telicanus*, two *L. Theophrastus*, one *L. Lysimon*, and several *C. alcea* var. *australis*, a nice red-brown variety. I also took several *P. Daplidice* hoping that they might prove to be var. *albidice*, Ob., but could not see that they differed from the ordinary form; probably *albidice* may be a later brood. February 27th was a red letter day with us: we went to El Kantara, a charming place on the railway about thirty miles north of Biskra, where a river cuts sharply through the last ridge of the Aurès; here a good country inn is to be found, where we spent several days very pleasantly.

On the top of a neighbouring mountain, flying among the rough halfa grass, I took five *Euchloë Pechi* (all males just out of chrysalis), and also several specimens of *L. Abencerragus* and *L. melanops*, the latter remarkably large and brilliant. Next day, on another beat, 15 more *E. Pechi* came to the nets, all in good condition, and always

taken on the top of a ridge. *E. Belia*, *E. Belemia*, *E. Charlonia*, *L. bœtica*, *L. melanops*, *L. Abencerragus* were all common, and *Thestor Ballus* fairly swarmed; it is probably the commonest Algerian butterfly in February and March.

This ended February, and we had taken no less than 30 species or named vars. during the month. I append list:—

1, *P. Machaon*, 2, *P. brassica*, 3, *P. rapæ*, 4, *P. Daplidice*, 5, *E. Belemia*, 6, var. *glauca*, 7, *E. Belia*, 8, *E. Charlonia*, 9, *E. Pechi*, 10, *C. Edusa*, 11, *G. rhamni*, 12, *G. Cleopatra*, 13, *Thestor Ballus*, 14, *Th. mauritanicus*, 15, *Ch. Phlaas*, 16, *L. bœtica*, 17, *L. Telicanus*, 18, *L. Theophrastus*, 19, *L. Abencerragus*, 20, *L. melanops*, 21, *L. Astrarche*, 22, *L. Icarus*, 23, *L. argiolus*, 24, *L. Lysimon*, 25, *V. polychloros*, 26, *V. Atalanta*, 27, *V. cardui*, 28, *P. Egeria*, 29, *C. Megæra*, 30, *C. alcea* var. *australis*.

March was ushered in by a sharp frost at El Kantara, so we returned to Biskra in search of warmth, and spent a day on the Beni Mora, getting a few *L. Theophrastus*, *L. Lysimon*, and sundries. The 5th was another red letter day with us, notwithstanding a high wind. We went to the Col de Sfa, and in a very steep rocky hollow, exposed to the full power of the southern sun, I took four specimens of *Teracolus Nouna*. Such was my ignorance that I believed the insect to be *E. Falloui*, and not till nearly a month later did I realize what a prize I had!

On March 7th we started from Biskra on a camping tour in the Aurès, travelling by Branis, Beni-Ferah and Ragli to Timgad in the Tell, and returning *viâ* Medina, Ktout, and Djiniha to Sidi Masmoudj, where we again found ourselves on the outskirts of the desert. Had we made this expedition in May, I feel little doubt that we should have taken many good insects, but in March there was little or nothing to be had; and although our tour was most enjoyable, it was, entomologically, a complete failure. We often had frost at night, the higher mountains being covered with snow, and though we generally rejoiced in glorious sunshine, gales were frequent. I may add, for the benefit of possible travellers, that the country is as safe as Switzerland, the French officers most hospitable, the Arab inhabitants civil and honest, and the women, who are remarkably handsome, walk about everywhere alone and unveiled.

At Sidi Masmoudj we were once more in a hot country, and again met with *L. Theophrastus* and *T. Nouna*, of which we took six. Again we found *Nouna* (or *Falloui* as I then thought it) haunting a sunny precipitous hollow, and showing a decided preference for one

special spot, a trait which we frequently remarked in this butterfly. It likes steep, sunny, rock faces, and is much easier to catch in the afternoon than in the morning, when it is apt to haunt the higher rocks and to fly very wildly.

March 20th found us back again at Biskra, and again we tried the Beni Mora, found *L. Lysimon* and *L. Theophrastus* still flying, and nothing much else that was worth catching. I was fortunate enough to fall in with Prof. Max Korb, the well known Munich collector, and he told me that *M. Didyma* var. *deserticola* was out, and to be had in plenty at the foot of the mountains about three miles south-west of Biskra; so we arranged an excursion there for the next day, which fortunately proved fine, and took a good series of the var. *deserticola* flying in and around the dry beds of streams where they meandered along the stony flats at the foot of the ridge. Having secured as many *deserticola* as we wanted, and also several pupæ of *Psyche quadrifasciaria*, we proceeded to explore the mountains close above us, and found them very steep and bare. After taking a few common insects, and scrambling a long way across the rocks, I caught a specimen of the butterfly I had previously supposed to be *E. Falloui*, but Prof. Korb joyfully exclaimed that it was *T. Nouna*, which he had never before met with! This was a revelation to me! I had taken a good many, and had hitherto imagined that the delicate orange edged beauty was *E. Falloui*, and not the rare *T. Nouna*. Prof. Korb presently secured another specimen, and then I found a good hot corner where I took five or six, but all rather worn.

I now began to enquire what *Falloui* was like, and Prof. Korb kindly showed me a specimen taken by him at Biskra a few days earlier; he assured me that if I had lately been taking *Belemia* in any number it was tolerably certain that I had got *Falloui* also, the two butterflies being so much alike that it is difficult to distinguish them in the net. This proved to be the case; I found a good series of *Falloui* among my captures when I came to have them set.

Next day we started in a gale of wind for a desert lake called Gilga, about six hours' march westwards from Biskra; but when we reached our point we found the lake almost dried up, and could not approach what water remained on account of tamarisk scrub and mud and quick-sands. A regular disappointment! However, we found good camping ground and good pasture for the animals, and next day made a successful excursion to a desert ridge to the southwards. Very bare rocks and very few insects of any sort; but in the after-

noon we discovered a baking precipice which was the chosen playground of *Nouna*, and by patiently haunting the ledges we succeeded in taking ten excellent specimens. They were all in the same spot, and invariably returned to it within about five minutes after being disturbed; we only saw one anywhere else, though we walked several miles along the ridge. Our next halting place was at the Fontaine des Gazelles, a beautiful oasis on the railway north of Biskra, where we hoped to find butterflies; but the oasis and the plain around it were singularly unproductive, nothing but *Edusa*, *Daphidice*, and other very common insects were to be seen, so we made for a rocky ridge about two miles to the south, and tried one of its little glens quite in vain, there was scarcely a butterfly about; but on climbing to the top of the ridge, which was long, sharp and narrow, with a nice hot precipice on the south side and a steep and scrubby northern slope, we found crowds of butterflies playing along the summit. *E. Belia*, *E. Belemia*, and *E. Falloui* were plentiful, and there was a nice sprinkling of *Nouna*, mostly in wretched order. *E. Charlonia* swarmed, and there were several *P. Machaon* about, so we returned to camp with a tolerable catch.

We next went to Beni-Fèrah, most picturesque of Aurès villages, and in its rocky gorges *E. Eupheno* abounded, but we only found a single specimen of *Nouna*, probably it is too high and cold a place for the beetle of the desert so early in the year. We then returned across the mountains to El Kantara, where we had two very successful days on the top of the long sharp edged mountain which may be considered as the dividing line between the Aurès and the desert. Here we again found *E. Pechi*, nearly a month after we had first taken it, and still in tolerable order; plenty of females were now to be had. *E. Pechi* is, I think, a very local insect, more so than *T. Nouna*, which is present in small numbers on all the rocky ridges adjacent to the desert; whilst we found *Pechi* only about El Kantara and Batna (early in April), I had fully expected to meet with it in the Aurès and searched every likely place where the halfa grass grew, but quite in vain. Nor, I believe, has it ever been taken in Northern Algeria, though the halfa grass covers most of the hill sides. Flying with *Pechi* round the highest rocks were quantities of *E. Belia*, *E. Belemia*, a few *E. Falloui*, *E. Eupheno*, *P. Machaon*, &c.; also a *Melanargia* (*Ines*?) just out, of which we took five, all fresh specimens. On the thorn bushes *C. rubi*, var. *fervida*, was common, and *L. melanops*, *L. batica*, and *L. Abencerragus* haunted the steep slopes; but we had

left *Nouna* behind on the lower ranges fringing the desert, and saw it no more.

Batna was our next point, and here we spent a very pleasant day in the cedar forest. We ascended Djebel Touggourt (5000 ft. high), and found patches of snow still lying near the summit. Lower down we took *E. Pechi* just out, and in the valleys saw a good many *Thestor mauritanicus*, and found them rather hard to distinguish on the wing from *Th. Ballus*, which swarmed. At Lambessa we were unlucky, having a sunless day with storms around, so we took nothing; but it is probably good collecting ground.

On April 2nd we returned to Northern Algeria, and I much regret that we did so, as it was still too early for butterflies in that part of the country, and if we had remained in the Batna district or anywhere on the southern side of the watershed, we should have done better. We went to Tizi Ouzou and Port Gueydon, and took nothing of interest. Then to Michelet, high up in the Djurjura range, and got only one good butterfly, viz., *S. Sao*, var. *Mahomedani*, a very distinct variety. April 11th we made an excursion across the Col de Tirourda in splendid weather, and scarcely saw a butterfly; the country people assured me that it was much too cold for them, and that they swarmed everywhere six weeks later. Things were much the same at Téniet el Haâd (in Oran); the cedar forest was splendid, and looked as if it was excellent butterfly ground—only they were not yet out. Here I found *Thais rumina* for the first time in Algeria, and that was the best thing I took there. We were obliged to return to England April 19th, and I left Africa regretting that I was unable to spend another two months there.

I believe that Prof. Korb intended to collect at Batna and Lambessa during April and May, and might perhaps penetrate into the Aurès. His captures must be most interesting if he did so. But it would be almost impossible to work the district properly without a tent, as the Arab villages have little or no accommodation for strangers, whilst in the Eastern valleys between Khenchela and the Sahara there are scarcely any villages at all, and no inhabitants except in summer, when the Arab shepherds go there and live in tents. If the entomologist would do likewise, he might possibly be rewarded by new species.

The Cottage, Bridgend:

September 4th, 1902.

GYNANDROPTHALMA AFFINIS, HELLW., A GENUS AND SPECIES
OF COLEOPTERA NEW TO BRITAIN.

BY THE REV. CANON W. W. FOWLER, M.A., D.Sc., F.L.S., P.E.S.

Among some doubtful beetles sent to me to be named for Mr. W. Holland, of the Hope Museum, Oxford, I found a small insect, which was evidently new to Britain; through the kindness of Mr. Champion and Mr. Gahan I have been enabled to identify it as *Gynandrophthalma affinis*, Hellw. (*collaris*, Schrank, *nec* Fabr.). The genus *Gynandrophthalma* of Lacordaire belongs to the *Clythrinae*, and is placed by Weise (*Naturgeschichte der Insecten Deutschlands*, vi, p. 121) between *Olythra*, Laich., and *Chilotoma*, Lac.; it contains a considerable number of species, seventy-three being enumerated by Gemminger and Harold; twenty-four have been found in Europe, and the others are very widely distributed, having been recorded from Egypt, Algeria, Sierra Leone, Zanzibar, Cape of Good Hope, Rio Janeiro, Thibet, and Singapore, &c.

The following is a description of *G. affinis*, which appears to have occurred throughout the greater part of Europe up to Finland, where it is very rare, according to Lacordaire.

Oblong, subparallel; head dark, closely and somewhat rugosely punctured with a strong depression at base; eyes large and prominent; antennæ short and stout, red at base, infusate towards apex, with joints 5-10 broader than long; prothorax much broader than head, finely punctured, almost smooth, red, with the central part broadly dark; elytra blue or greenish-blue, strongly and more or less irregularly, in parts somewhat rugosely, punctured; legs clear orange-red, the anterior pair being the longest.

Long, $2\frac{1}{2}$ —4 mm.

Mr. Holland's specimen was taken by him at Wychwood, near Witney, Oxfordshire, on June 18th, 1899; the species is said to occur in Germany from May to July on oak-shoots or in flowers; superficially, at first sight, it a little resembles *Gastrophysa polygoni*. The very short and stout antennæ, and the structure of the legs and tarsi will, however, easily distinguish it from any member of the *Ohryso-melinæ*. The occurrence of the species in the heart of the country is very interesting, and it is to be hoped that Mr. Holland will be able to find more examples next year.

Rotherfield Peppard Rectory,
Henley-on-Thames:
November 6th, 1902.

ON THE SPECIFIC IDENTITY OF *ACLETOXENUS SYRPHOIDES*,
FRAUENF., AND *GITONA FORMOSA*, LW.

BY J. E. COLLIN, F.R.S.

Before writing my article upon *Acletozenus syrphoides*, Frauenf.,* which appeared in the January number of this Magazine for the present year, I applied to the custodian of the collection of *Diptera* at the Königl. Zoologisches Museum at Berlin asking him kindly to examine the type of *Gitona formosa*, Lw., and inform me whether it possessed ocellar bristles, also to compare it with Frauenfeld's remarks and illustrations in the Verh. z.-b. Ges. Wien (1868), p. 899, that the question whether Frauenfeld only redescribed Loew's species, or not, might be positively settled; I did not, however, receive an answer to my enquiries, and had to publish my article leaving the question open.

Since then I have heard from the present custodian, Herr Karl Grimberg, to whom I am very grateful for the trouble he has taken, explaining that owing to the death of his predecessor in office my letter had been mislaid, and giving me the following answers to my queries:—

The type specimen of *Gitona formosa*, Lw., has no ocellar bristles.

The same differences exist between the venation of *Gitona formosa* and the other species of *Gitona*, as are represented by Frauenfeld's two illustrations.

The venation of *Gitona formosa* agrees in every particular with the lower figure representing *Acletozenus*, while the upper figure represents the typical venation of *Gitona*.

It will thus be seen that the only paragraphs in Loew's description which made both Frauenfeld (in 1868) and myself (ante p. 3) doubtful of the identity of *G. formosa* with *A. syrphoides* are proved to be inaccurate, and without any hesitation I now sink Frauenfeld's name as a synonym; the species is undoubtedly generically distinct from *Gitona*, and the references will now read as follows:—

ACLETOXENUS FORMOSUS, Lw., Wien, Ent. Monatschr., viii (1864), 366 (*Gitona formosa*).

syrphoides, Frauenf., Verh. z.-b. Ges. Wien. xviii (1868), 152, 897; Collin, Ent. Mo. Mag. (2), xiii (1902), 1, pl. I.

6, Harley Street, W.:

November, 1902.

* In this article I refer to the type of *Agromyza ornata*, Mg.; according to Becker (Zeitschr. Hymen. Dipt., 1902, 340) this cannot now be traced.

A NEW INDIAN MICRO-TRICHOPTERON.

BY KENNETH J. MORTON, F.E.S.

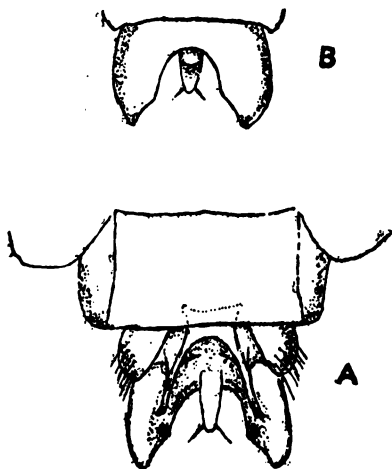
Some years ago Mr. McLachlan sent me a (for the family) huge Indian species of *Hydroptilidae*, but until quite recently other things have prevented me from making more than a cursory examination of it. My interest in these small *Trichoptera* having been specially and strongly revived by working through a large consignment of North American forms, I have been led to make a thorough overhaul of the insect in question, and I now submit herewith a description of it.

In size the species exceeds any previously known member of the family. Notwithstanding this, and also some differences in minor details (particularly the apparent absence of the ventral lamina) from the more typical forms of the genus *Ithytrichia*, I do not consider it necessary to separate it from that genus in the meantime. In neurulation, warts of the head, possession of ocelli, spur formula (0, 3, 4), the long slender apical joint of the maxillary palpi, it agrees with that genus, and the appendages are also of a comparatively simple character.

ITHYTRICHIA VIOLACEA, n. sp.

Antennæ (mutilated) so far as present, very pale yellow, almost white; clothing of head dark brown, paler in the front part between the antennæ, where the hairs become almost dark golden. Palpi whitish. Tarsi pale yellowish-testaceous; basal joints of last pair tinged with fuscous; legs otherwise fuscous; tibiae of last pair externally with long dense ciliae, middle tibiae also ciliated but not so strongly. Anterior wings very dark brown, probably deep black in life, and somewhat violet tinted, due to the iridescence of the wing-membrane. A very few snow-white upright hairs on the wings do not form any pattern or affect their uniformly dark appearance. Hind-wings almost equally dark, with deep grey fringes.

The appendages of the male viewed from above consist of (1) two large sub-



triangular lobes, which are in reality the angles of the last dorsal segment. (2) From between these lobes proceed two comparatively slender strongly chitinized rods, apparently united at the base, and at the apex very slightly out-turned. (3) Between the rods and inferior to them is a down-turned process, probably hollowed, on or in which rests, if exerted, the penis: this organ is (so far as exerted) simple and rod-like. (4) The large inferior appendages are united, concave, divergent, with a deep semicircular excision between them, outer margin regularly curved, inner margin oblique in the apical portion; at the angle where the oblique portion joins the circular portion the membrane is darkened: viewed from the side these appendages are strongly upturned.

Figs. A and B represent the apex of the abdomen from above and beneath respectively.

Expanse of wings, ♂, 12 mm., ♀, 14 mm.

Hab.: Khasias. Three males and one female. (One male labelled "Khasias," the other examples labelled "Cherra Punji," two bearing the date vii-94).

One male broken up in working; the remaining examples in Mr. McLachlan's collection.

Another Oriental Hydroptilid has been described, *Plethus cursitans*, Hagen, from Ceylon, but it has nothing to do with the present species. It possesses 0, 2, 3 spurs, and is a very small insect. (*Hydroptilia cursitans*, Hagen, Verhandl. der z.-b. Ges., Wien, ix, p. 209, 1859; *Plethus cursitans*, Id., *ibid.*, 1887, pp. 643-5).

13, Blackford Road, Edinburgh:

October, 1902.

NOTE ON *ORTHEZIA FLOCCOSA*, DE GEER.

BY E. ERNEST GREEN, F.E.S., GOVERNMENT ENTOMOLOGIST, CEYLON.

Mr. C. French, Entomologist to the Victorian Department of Agriculture, has sent me examples of a Coccid found "on some wet timber at the 300 feet level, in a mine, in Gippsland, Australia." A truly remarkable situation in which to find living *Coccidæ*! The insect proves to be *Orthezia floccosa*, De Geer. European examples of this species are usually found amongst wet moss or sphagnum. It is possible that they may feed either on these mosses or upon *Algae* associated therewith. These Australian examples may have been carried down from the surface with the timber used in the mine, and may have sustained themselves upon such cryptogamic plants during their sojourn underground. All the species of *Orthezia* appear to be able to exist for long periods without food (a characteristic found also in many *Monophlebinae*). These same insects survived the journey by post from Australia to Ceylon, absolutely without food, and are still living in the pill-box in which they were received.

In comparing them with European examples of the species, I noticed a character in *O. floccosa* which does not appear to have been remarked before, distinguishing it from all its allies, but associating it with *Ortheziola* of Sulc. The tibio-tarsal articulation is absent in all the legs, and the terminal joint of the antenna is apparently composed of two fused joints, forming a scape-like termination; the antennæ

thus consisting of seven distinct joints as opposed to eight in the other species. In *Ortheziola* the number is still further reduced, three only being apparent. Another remarkable character in *floccosa* is the very long basal joint of the antenna.

Signoret ("Essai," p. 424) considered *floccosa* to be a synonym of *urtica*, L.; but it seems evident to me that he has confused the two species in his description and figures. Plate xxi, fig. 1b, which Signoret suggests (with a query) may be the male larva of *urtica*, really represents the adult of *floccosa*. His drawing correctly shows the fused tibio-tarsus and long terminal joint to the seven-jointed antenna; it also indicates the unusually large basal joint.

This is the first record of an *Orthezia* from the Australasian region. I have compared the Australian specimens with examples from Bohemia and England; they agree with the typical form in every particular.

With this connecting link it is a question whether *Ortheziola* should rank as more than a subgenus. Another subgenus might be erected for the species having fused tibio-tarsus with seven-jointed antennæ. I would suggest the name *NEWSTEADIA* for the proposed subgenus, in honour of an Entomologist whose valuable papers on *Coccidæ* have been a feature in the "Entomologist's Monthly Magazine" during the past decade. *Type*: *D. floccosa*, De G.

Peradeniya, Ceylon: August, 1902.

Acletozenus formosus at Cambridge.—This species has again occurred here this summer. I was away from home during the whole of July. On August 4th I found one on my dressing room window. August 5th, four specimens; August 10th, 12th, 13th, 14th, 20th, and 21st, one each day; these last ten specimens in the garden.—F. JENKINSON, 10, Brookside, Cambridge: November 16th, 1902.

Crinopteryx familiella, Peyer., bred in England.—In my notes on this species (Ent. Mo. Mag., 1902, p. 93) I mentioned the oviposition. I have been very pleased during this month to rear about a score of specimens from eggs laid in my garden by moths sleeved out on *Cistus salvifolius*. I devoted most of these to endeavour to continue the experiment, but the weather has been so wet since they were sleeved out, that for this reason alone I fear this is the last of them. It is of interest that even so much can be done with a Micro-Lepidopteron of so definitely Mediterranean a type.—T. A. CHAPMAN, Betula, Reigate: October, 1902.

Lycæna Hylas, Esp. (*Dorylas*, Hüb.), in Britain.—On September 7th of the present year I had the good fortune to capture a specimen of this species in the neighbourhood of St. Margaret's Bay, Kent. So similar was this specimen to a variety of a common species that I was in some danger of allowing it to escape, and I cannot help thinking that the insect may be of more frequent occurrence with us than is supposed.—G. O. SLOPER, Highworth, Swindon: November, 1902.

With reference to the specimen of *Lycæna Hylas* captured near here by Mr. Sloper, it may be well to record that Cooke had the first British specimen. It came to him in 1863 among a quantity of *L. Adonis* captured in the Isle of Wight, and he sold it to Mr. Bond. It was reported (see Zool., 8402) that two were taken at that time, but I never heard what became of the second. Another was stated to have been secured in the following year at Brighton--on the day succeeding that of the capture of *L. bætica*—and this also passed into Mr. Bond's hands, but it is only *L. Adonis* with unspotted cilia.—SYDNEY WEBB, Dover.

[Lewin, "Insects of Great Britain," figured this species as British under the name of *Hyacinthus*; and upon this the late Mr. Henry Doubleday remarked (Zool., 8402), "I do not know whether any of Lewin's specimens are now in existence, but his figures most certainly represent the sexes of *L. Dorylas*, which is distinguished from *L. Adonis* by its paler blue colour slightly tinged with green, immaculate cilia, and the absence of the two transverse ocelli at the base of the fore-wings beneath."—C. G. B.]

Acidalia rusticata in Devon.—Between the 1st and 14th of last August I met with six specimens of this species at Torquay; they were all in fine order, some being taken at rest on rustic palings, while others were secured on the wing at dusk, at which time it has a curious "buzzing" or hovering flight. As *A. rusticata* sits on a fence with its wings spread out, the insect has a wonderful resemblance to the excrement of a small bird, and it was when in this position that the species was first observed. The trees near were mostly privet and lilac, and I am not quite sure whether there was any elm. The capture of this pretty little *Acidalia*, for the first time, has pleased me immensely.—C. GRANVILLE CLUTTERBUCK, Lauriston, Denmark Road, Gloucester: October 17th, 1902.

Crambus hamellus, Thnb., at Chobham.—Between August 17th and 20th, 1892, I found this in abundance near Chobham Common. It was, however, confined to a piece of heather-covered roadside waste of about 60 yards in length, and to the adjoining moor; on the other side of the road, where there was little or no heather, it was not to be found. It was very lazy, fluttering gently from one piece of heather to another, and could be boxed with the greatest ease. If frightened, it tried to hide itself, and sometimes (though very rarely) settled on a grass stem, but evidently felt itself at home only on heather (*Erica tetralix*). Although in excellent condition on August 20th, it had quite disappeared on the 26th of the same month.—A. H. CLARKE, 109, Warwick Road, Earl's Court, S.W.: October 27th, 1902.

Meloe rugosus at Broadetaire.—It was a great pleasure to me this morning to pick up a specimen of this beetle close to the spot where I had taken two other

examples in years gone by. The dates of capture are somewhat peculiar: December 1st, 1886, April 25th (approximately), 1896, and now October 18th. Probably the insect emerges in autumn, and reappears in spring after hibernation.—THEODORE WOOD, The Vicarage, Lyford Road, Wandsworth Common: October 18th, 1902.

Miscodera arctica, Payk., in Cumberland.—From the known distribution of this species in the British Isles it seemed an absolute certainty that it must occur somewhere among the mountains of Cumberland, but I know of no published record, nor have I taken it myself, although always having it in mind when collecting among the Lake mountains and the Pennines. I was therefore very pleased to see a specimen among a number of *Coleoptera* sent to me for names by Mr. H. Britten of Great Salkeld, labelled Wan Fell, 10.8.02. Wan Fell is a low sandstone hill in South-East Cumberland, and although it has little claim to be considered a mountain when compared with Cross Fell, Scaw Fell, and Skiddaw, it has nevertheless produced several species usually associated with high districts, e. g., *Bembidium nigricorne*, *Cymindis vaporariorum*, *Agabus congener*, and *Hydroporus morio*.—FRANK H. DAY, Carlisle: October 20th, 1902.

Lamostenus complanatus, Dej., at Woolwich.—I find that I captured two specimens of this beetle on October 31st, 1900, under a flower box standing on the window sill of a house at Woolwich; only one of them is in my collection, the other having either been destroyed, or given away as *Pristomychus ferricola*.—E. C. BEDWELL, 25, Ossian Road, Stroud Green: November, 1902.

Lamophloeus bimaculatus, Payk., near Guildford.—I found a specimen of this rare species on the downs near Guildford on September 27th, under bark of a felled beech. The insect has not, I believe, been previously recorded from this part of Surrey. With it occurred *L. ferrugineus*, Steph., *Silvanus unidentatus*, Fabr., *Ditoma crenata*, Fabr. (varying to entirely testaceous), and *Litargus bifasciatus*, Fabr. It is just thirty years since I had seen *L. bimaculatus* alive, under similar conditions, in the New Forest.—G. C. CHAMPION, Horsell, Woking: Nov. 4th, 1902.

Saperda scalaris in Cumberland.—I captured a specimen of this species in Gelt Wood, near Carlisle, on July 7th, 1900; another was found by Mr. H. Britten in Baron Wood, Armathwaite, on June 22nd, 1902. Stephens, in his Illustrations, records that several were taken at Cockermouth.—GEORGE B. BOUTLEDGE, Tarn Lodge, Headsnook, Carlisle: November 5th, 1902.

Pogonus luridipennis, Dej., on the Lincolnshire coast.—During the month of September I received from Mr. C. S. Carter, of Louth, three examples of a *Pogonus*, about the size of *P. chalcus*, but with the coloration of *P. luridipennis*. Thinking this might be due to immaturity, I sent one of the specimens to Canon Fowler, who returned it as without doubt a small example of *P. luridipennis*. The specimens were taken in the neighbourhood of Grimsby. It is quite possible, if carefully

looked for, it might be found all along the coast, as *P. chalceus* is quite common in many places.—ALFRED THORNLEY, South Leverton Vicarage, Lincoln: November 5th, 1902.

Histeromerus mystacinus, Wesm., in Devonshire.—Three specimens of this rare parasite were captured by Mr. J. H. Keys on August 14th, 1901, while hunting for beetles in a decayed oak tree in the valley of the river Tavy, between Lady Virtuous and Lady Bertha mines. He very kindly presented them to me, and on referring to Marshall's Monograph of the *Braconidae*, I observed that its history was unknown, and that no record of any British captures had been made, although two specimens were in Marshall's collection, and were given to him by Mr. Ward, and supposed to be taken in or near London. On reading this I arranged with my friend Keys to visit the tree together, which we did on August 24th, and found the beetle *Sinodendron cylindricum*, Linn., in all its stages; and, still better, found three larvæ, each surrounded by about a dozen parasitic larvæ, apparently full-fed; they were brought home, but they could not stand their disturbance.—G. C. BIGNELL, Saltash: November 4th, 1902.

Ectopsocus Briggsi, McLach., abundant at Bognor.—Although I have collected Psocids for the last twenty years, until last week I was unaware of the existence of this species, at which date Mr. C. A. Briggs, of Lynmouth, its discoverer, kindly sent me specimens. I was, therefore, naturally much surprised to find on Saturday last, November 1st, that it was in abundance in my own garden at Bognor, Sussex, in larval, nymphal, and imaginal states on the under-sides of fallen leaves of the North American poplar, in which situation it appears to be feeding on a fungus. Its occurrence at a time when collecting among damp leaves is not over pleasant is no doubt the reason of my not having observed it before. It would be interesting if other observers would communicate the result of their investigations in similar localities, for the purpose of ascertaining its distribution.—H. L. F. GUERMONPREZ, Dalkeith, Bognor, Sussex: November 11th, 1902.

Hibernation of Dragon-flies.—With reference to Mr. McLachlan's note in the November number of the Ent. Mo. Mag. (p. 265), I may mention that Mr. Lucas, in his "British Dragon-flies," p. 260, writing of *Pyrrhosoma nymphula*, Sulz., says, "In early seasons *P. nymphula* appears in April, the earliest date noted being April 29th," &c. Many years ago I remember taking a specimen myself in April at Burgess Hill, Sussex. I have no note of the exact date, but think it was early in the month. Perhaps this species hibernates as well as *Sympycna fusca*.—W. F. KIRBY, Natural History Museum, South Kensington: October 30th, 1902.

[But if Mr. Kirby will refer to the same work, p. 258, he will find that Mr. Lucas once bred *P. nymphula* from the nymph on April 27th.—R. McLACHLAN].

Obituary.

Dr. Joseph Kriechbaumer was born at Tegernsee in Bavaria on March 21st (Hagen, Bibl. Entomol., says March 13th), 1819, and died at Munich on May 2nd, 1902. He qualified for the medical profession at Munich, but apparently never

practised, and for some years was engaged in teaching Natural History. In 1844 he obtained an appointment in the Cantonal School at Chur in Switzerland, remained there nine years, and in 1853 returned to Munich; in 1859 he was appointed Assistant in the Zoological State Museum in that city, and eventually (after filling intermediate positions) Second Curator in 1898. His earlier entomological writings were on *Coleoptera* (his "Inaugural Dissertation" was on the *Cerambycidae* of Munich), and during his long life he also published on *Diptera* and other insects; but it was in *Hymenoptera* that he made himself best known; on these he was looked up to as an authority, and it was especially the *Ichneumonidae* that attracted him most; in this difficult group his name will go down to posterity as one of its most earnest and conscientious students.

Homer Franklin Bassett, a diligent student of North American Galls and Gall-flies, was born at Florida (Mass.) on September 2nd, 1826, and died at Waterbury (Conn.) on June 28th, 1902. After completing his education he appears to have occupied various positions, and to have been to some extent a good example of the adaptability of "our American cousins"—farmer, schoolmaster, and insurance and estate agent. But in 1872 he was appointed Librarian to the Bronson Library in Waterbury, a post in strict accordance with his predilections, and which he held until 1901, much to the advantage of the Library. He did much good work in *Cynipidae* and other gall-flies, and a short time ago presented his collection to the American Entomological Society. We are indebted to our contemporary, "Entomological News," for most of the information in this short notice.

Dr. Pierre Jules Tosquinet, President of the Entomological Society of Belgium. We regret to announce the death of Dr. Tosquinet at Saint-Gilles, a suburb of Brussels, on October 28th last. He was born at Bastogne, in the Province of Luxembourg, on February 16th, 1824, and was thus in his 79th year. He entered the medical service of the Belgian army, and was formerly surgeon to the 2nd line regiment, eventually becoming Military Inspector General for Health, from which post he had retired; he was also President of the Central State Commission for Vaccination. He was elected into the Entomological Society of Belgium on October 5th, 1872, and, having been Vice-President, became President, and was in his second year of office at the time of his death. It was probably somewhat late in life when his attention became seriously concentrated on entomological studies. He devoted himself to parasitic *Hymenoptera*, especially *Ichneumonidae*, and acquired wide knowledge of the group and considerable materials. But he published little, although several communications from him are to be found in the later volumes of the *Annales Soc. Ent. Belg.*; in that Society he took the warmest interest, and was greatly esteemed by his colleagues. He leaves a widow, son, and three grandchildren to deplore his loss. His entomological compatriots will no doubt publish fuller details of his career than we are able to do here.

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *September 15th, 1902.*—Mr. R. C. BRADLEY in the Chair.

Mr. G. W. Wynn showed various *Lepidoptera*, including *Protoparce cornol-*

vul, L., taken at Hampton-in-Arden, September 28th, 1901; series of *Cymatophora duplicaria*, L., from Wyre Forest, Sutton, and Hay Woods, near Knowle; those from Wyre (a long series) were typical, with well-defined transverse markings, and quite pale median bands, whilst those from Sutton and Hay Woods were all dark, and approaching a unicolorous, character the pale markings practically gone, and the dark ones indistinct, one dark band beyond the middle being fairly distinct, and the others quite faint; he said others he had from Tamworth were also of this dark form, and he suggested that it might be due to the neighbourhood of Birmingham of those three localities; also a fine variety of *Xanthia lutea*, Ström (*silago*, Hb.), from Hampton-in-Arden, which showed a broad intensified median band, and an intensified costal spot near the base of the wings, and practically no other markings, the small spots being absent; also *Cymatophora octogesima*, Hb., and other insects from Wyre Forest. Mr. A. H. Martineau, *Volucella inanis*, L., from Littleham, South Devon, where it was taken on rubus bloom on August 6th, 1902. Mr. J. T. Fountain, five *Charocampa elpenor*, L., bred from larvæ found near Shirley in 1901; also a series of *Spilosoma menthastris*, Esp., bred from a nearly unicolorous female: a few resembled the parent, and these he said were the first to emerge. Mr. Bradley, *Aculeata* taken at Barmouth this year: *Agania variegata*, L., a good series of both sexes, taken in June and August; and *Sapyga 5-punctata*, F., a series with one male only, taken in June; both species must have been common, but were hard to take. Mr. Colbran J. Wainwright, rare *Tachinida*, *Pareuxoresta fimbriata*, Meig., ♂, from Tan-y-bwlch, North Wales, 1901, and *Phytomyptera nitidiventris*, Rdl., from Bournemouth, 1901, both taken by Mr. Bradley; he said the last named appeared to be new to Britain. Mr. W. H. Flint, the following *Lepidoptera*: *Drymonia chaonea*, Hb., a fine bred one from the Forest of Dean district; *Notodonta trepida*, Esp., found at Kingswood, just emerged; *Larentia cucullata*, Hufn. (*sinuata*), and *Acidalia rubiginata*, Hufn. (*rubricata*, F.), one of each from South Devon, between Marychurch and Newton Abbot; also three very fine varieties of *Larentia sordidata*, F. (*elutata*, Hb.), from the Forest of Dean, which showed a broad, pale, median band, with a dark, broad, hind marginal band, and a broad dark band before the median pale one; also *Sesia chrysidiformis*, Esp., and *S. ichneumoniformis* (S. V.), F., from the Forest of Dean district; of the latter he showed a fine series, and said that he had traced it to its head quarters, where he found it flying commonly over trefoils and other low growing flowers; he could have taken two dozen a day easily; also a fine specimen of *Lycana semiargus*, Rott. (*Acis*, Schiff.), ♂, which he took at Wolvey, in Leicestershire, in 1896; he did not recognise it till he got it home, but it is in fine condition and unmistakable; also a specimen of *Argiades comma*, L., said to have been taken in Warwickshire, near Stoneleigh, but needing confirmation.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY.—The Opening Meeting of the Winter Session, held on October 13th in the Royal Institution, Liverpool, was largely attended. In the unavoidable absence of the President, Mr. S. J. CAPPER, Dr. JOHN COTTON, F.E.S., occupied the Chair.

Messrs. Oscar Whittaker, of Bolton; James Roland Charney, F.E.S., of Pres-

ton; A. G. Wallington, of Warrington; John Lea and J. Jervis Richardson, of Liverpool; were elected Members of the Society.

It was unanimously decided to hold the next Meeting in Liverpool on November 10th, and that a Meeting be held in Warrington on December 8th, provided the Secretaries were able to make all necessary arrangements for the same.

A large and interesting display of insects was shown by Members, amongst the more striking being the following:—Fine series of *Lepidoptera* captured during 1902 by Dr. J. Cotton on Simonswood Moss, and in North Devon; in exhibiting which he gave much valuable information regarding the method employed in the taking of *Notodonta dictaoides*. Captures at the Delamere Field Meeting by Mr. F. N. Pierce, F.E.S. (Liverpool), included excellent specimens of the local *Tephrosia binudularia*, var. *delamerensis*, *Cidaria corylata*, *Thera variata*, and other moths. Mr. C. E. Johnson's (Stockport) very fine black varieties of *Zygana Mimos* were much admired, as was also the valuable collection of British *Coleoptera* of Mr. J. R. le Brockton Tomlin, F.E.S. (Chester), containing as it did amongst other scarce species series of recent captures of *Hydrovatus clypeatus*, a water beetle of which very few had been taken during recent years; *Elatér miniatus*, *E. lythrophorus*, and *E. sanguinolentus*; *Anthaxia nitidula*, *Agrilus biguttatus*, and *Cryptoccephalus sexpunctatus*, from the New Forest; *Phosphæus hemipterus* from Southampton; and the beautiful longicorn *Saperda scalaris* from Sherwood. Another Coleopterous exhibit was Dr. G. W. Chaster's (Southport) fine display of recent captures in the Southport district, which included many unique additions to the Lancashire County List. Of the many species shown by him perhaps the following attracted most attention, *Medon obsoletus*, *Thinobius brevipennis*, *Pseudopsis sulcata*, *Anisotoma furva* and *A. ciliaris*, the extremely local *Ammocius brevis*, *Agialia rufa*, *Telephorus Darwinianus*, *Gymnetron collinus* and *G. linaria*, and *Ceuthorrhynchus euphorbia*. Mr. J. T. Wardley (Knotty Ash) exhibited a case of *Coelus ligniperda* bred from Formby larvæ; and Mr. Oulton Harrison (Wavertree), on behalf of Rev. T. Eddrup, a box of *Emmetica cervinata* from Bremhill, Wilts, kindly sent for distribution. Among the many interesting features of Mr. R. Tait's (Manchester) exhibit were fine varieties of *Boarmia repandata*; some rosy forms of *Agrotis agathina*; a beautiful series of *A. ripa* from Cumberland, and bred varieties of *Acidalia contiguaris*, including two unique aberrations. Mr. J. Roland Charnley, F.E.S. (Preston), showed a fine male *Chrysophanus dispar*—the "Large Copper"—an insect now probably extinct; his recently published little brochure on this beautiful butterfly served to still further enhance the value of this exhibit; a box of jumping beans from Mr. Charnley also received attention. Mr. J. Collins' (Warrington) contribution included long bred series of *Eupithecia debiliata* from Stafford, *Crambus warringtonellus*, *C. hamellus*, from Lancashire mosses, *Lithosia sericea* and *Exeretia Allisella*; whilst Mr. H. B. Prince's (Birkenhead) extensive display contained amongst other notable insects a remarkably fine series of *Erebia Cassiope*. Another attractive exhibit was that of Mr. B. Crabtree, F.E.S. (Manchester), whose long series of the Large Heath butterfly, *Canonympha Typhon* (*Darus*), var. *Rothliebi*, was arranged to show the extreme range of variation in the under-side. Mr. W. Raepér's (Levenshulme) Scotch captures during the present season including many interesting moths; whilst Mr. J. Jervis Richardson's *Exetia*

Lepidoptera, *Intomeris Io* reared this season, and a series of beautifully produced photographs of British Lepidopterous larvæ, found many admirers. Mr. E. J. B. Sopp, F.R.Met.S. (Birkdale), a collection of Palearctic and Exotic *Forficulida*, which included representatives of our giant Christchurch earwig, *Labidura riparia*, *Anisolabis mauritanica*, from Tunia, *Spongiphora croceipennis* (*Herminieri*) from Espirito Santo (Brazil), *Chelidura Bolivari*, from Castile, *Apterygida japonica*, from Japan, and *Forficula pubescens*, a southern European earwig recently taken at Colechester by Mr. Harwood.—E. J. BURGESS SOPP, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON: *October 15th*, 1902.—Prof. EDWARD B. POULTON, M.A., D.Sc., F.R.S., Vice-President, in the Chair.

Mr. A. J. Chitty exhibited an entirely black specimen of *Metacus paradoxus* as tending to disprove the mimicry suggested by him at the meeting on Oct. 1st. Dr. Chapman said that in his experience one out of every six specimens of this species was black. Mr. Donisthorpe stated that out of about one hundred specimens he had never caught or bred a black *Metacus*. Mr. E. P. Picket, a variety of the female of *Argynnis Aglaia*, varieties of *Satyrus Janira*, and a long series of *Lycæna Corydon* taken near Folkestone and Dover in August last, including four males of the the last named species, with black band on the edge of the fore-wings much deeper than usual; also twelve dwarf male specimens of this species, four dwarf females, and many other aberrant forms. Mr. Goss said this dwarf form of *L. Corydon* occurred constantly, according to Mr. Sydney Webb, in one valley about two miles east of Dover, but he was unaware of its regular occurrence elsewhere in this country; he remarked that a dwarf form of *L. Arion* occurred everywhere where the type was found, both in Gloucestershire and Cornwall. Prof. Poulton, Dr. Chapman, and Mr. Sloper also remarked on the dwarf form of *L. Corydon*. Dr. Chapman, specimens of *Notodonta (Hybocampa) dryinops*, Lower, from Queensland, sent to him under this name by Mr. F. Dodd; it was remarkably similar in appearance, structure, and habits to *Hybocampa Milhauseri*; he stated that the pupa with a similar spine to that of *H. Milhauseri* does not cut out a regular oval lid from the cocoon like that species, but by a stabbing process pierces it with a number of holes, so that a piece is more easily pushed off. The cocoon being covered with bits of bark, stone, &c., a cutting process would be impossible, whereas the cocoon of *H. Milhauseri* was of pure gum-like silk; he pointed out that the larva much resembled that of *H. Milhauseri*, but the hinder segments were more like those of *Stauropus fagi*; also living eggs, larvæ and imagines of *Orina tristis*, var. *smaragdina*, from Pino, Maggiore; the beetles were taken on May 30th, and had laid many eggs. Dr. Chapman said that the embryo, ready to hatch, might be seen within some of the eggs, and its hatching spines observed. Mr. Sloper, a specimen of *Lycæna Hylas*, caught at Dover on September 7th last. Mr. Martin Jacoby communicated a paper, entitled, "A further Contribution to our knowledge of African Phytophagous *Coleoptera*." Mr. Malcolm Burr read a communication from Hofrath Dr. Carl Brunner Von Wattenwyl, entitled, "Observations sur le nom générique *Acrida*."—H. GOSS, *Hon. Secretary*.

INDEX.

	PAGE
CONTRIBUTORS	i
GENERAL INDEX	ii
SPECIAL INDEX—	
Coleoptera	ix
Diptera	x
Hemiptera	xi
Hymenoptera	xiii
Lepidoptera	xviii

	PAGE
SPECIAL INDEX (<i>continued</i>)—	
Neuroptera	xiv
Orthoptera	xlv
GENERA AND SPECIES NEW TO SCIENCE.....	xv
" " " " " BRITAIN ...	xvi
EXPLANATION OF PLATES	xvi
ERRATUM	xvi

INDEX TO CONTRIBUTORS.

	PAGE
Adams, F. C., F.Z.S.	84, 110
Andrews, H. W., F.E.S.	7
Annandale, Nelson, B.A.	263
Bailey, J. Harold, M.B.	133, 178, 219, 238
Bankes, Eustace R., M.A., F.E.S.	222, 229, 245, 246, 264
Barnes, W.	265
Barraud, P. J.	243
Barrett, C. G., F.E.S.	79, 123, 184, 245, 263
Barrett (Miss), Frances	123
Beare, Prof. T. Hudson, B.Sc., F.R.S.E., &c.	8, 9, 132, 179, 241, 242
Bedwell, E. C., F.E.S.	263, 267
Bergroth, Dr. E., C.M.Z.S.	258
Bignell, G. C., F.E.S.	268
Birch, F.	15, 43, 137
Bloomfield, Rev. E. N., M.A., F.E.S.	6, 9
Boyd, W. C.	112, 265
Bradley, R. C.	85, 160, 267
Butler, E. A., B.A., F.E.S.	220, 248
Campbell-Taylor, J. E.	184
Calvert, P. P., Ph.D.	29
Carter, A. E. J.	113
Champion, G. C., F.Z.S.	88, 112, 184, 219, 267
Chapman, T. A., M.D., F.Z.S.	93, 111, 265
Charbonnier, H. J.	10
Chitty, A. J., M.A., F.E.S.	66, 73, 86, 182, 219
Clarke, A. H., F.E.S.	266
Clutterbuck, C. G.	266
Cockerell, Prof. T. D. A., F.Z.S.	86, 182
Collin, J. E., F.E.S.	1, 55, 69, 262
Connold, E., F.E.S.	256
Cottam, Arthur	268
Crutwell, Rev. Canon, M.A., F.E.S.	244

	PAGE
Dale, C. W., F.E.S.	37, 76, 107, 157
Day, F. H.	268, 287
Distant, W. L., F.E.S.	247
Durrant, J. Hartley, F.E.S.	28, 84, 87, 88, 163
Eaton, Rev. A. E., M.A., F.E.S.	132, 160
Edwards, J., F.E.S.	5, 181, 215, 240
Elliot, E. A., F.E.S.	131, 220
Embleton (Miss), Alice L., B.Sc.	132
Esam, W.	38
Fowler, Rev. Canon W. W., M.A., D.Sc., F.L.S.	268, 269, 281
Gorham, Rev. H. S., F.Z.S.	205
Goss, Herbert, F.L.S.	66, 72, 139, 220, 274, 292
Green, E. Ernest, F.E.S.	214, 219, 232, 260, 284
Greene, Rev. Joseph, M.A., F.E.S.	112, 113
Guermonprez, H. L. F.	288
Halliday, E.	66
Hamm, A. H.	266
Hampson, Sir G. F., Bart., B.A., F.Z.S.	221
Harwood, B. S.	66, 266
Jeffrey, W. R.	67
Jenkinson, F., M.A.	235
Jennings, F. B., F.E.S.	39, 179, 224, 268
Johnson, Rev. W. F., M.A., F.E.S.	218
Joy, Norman H., M.R.C.S., F.E.S.	179
Kemp, Stanley W., F.E.S.	177, 216, 241
Keys, James H., F.E.S.	147, 268
King, J. J. F. X., F.E.S.	186
Kirby, W. F., F.L.S.	288
Knaggs, H. G., M.D., F.L.S.	68
Longstaff, G. B., M.D., F.R.C.P.	19
McLachlan, R., F.R.S., &c.	33, 87, 112, 122, 146, 176, 186, 212, 224, 235, 248, 268

	PAGE		PAGE
Malloch, J. R.	161	Sharp, D., M.B., M.A., F.R.S....	8, 61, 88, 218
Marshall, G. A. K., F.E.S.	46	Sharp, W. E., F.E.S.	64
Mathew, G. F., R.N., F.L.S.	220, 231, 247, 264	Shaw, Eland, M.R.C.S., F.E.S.	264
Merrifield, F., F.E.S.	270	Sladen, F. W. L., F.E.S.	266
Meyrick, E., B.A., F.Z.S.	60, 68, 108, 173, 217, 222	Sloper, G. O., F.E.S.	266
Morice, Rev. F. D., M.A., F.E.S.	51, 81, 83, 104, 158, 170, 171, 184, 207, 223	Smith, W. W., F.E.S.	132, 182, 266
Morley, Claude, F.E.S.	4, 51, 118, 173, 249, 264	Sopp, E. J. Burgess, F.E.S., &c.	9, 72, 115, 292
Morton, Kenneth J., F.E.S.	10, 34, 150, 255, 283	Studd, E. F., M.A., B.C.L., F.E.S.	131
Nevinson, E. B., F.E.S.	11	Taylor, J. Kidson	180, 268
Newbery, E. A.	65, 86, 253	Thompson, M. L., F.E.S.	111
Nicholl (Mrs.), Mary de la B., F.E.S.	274	Thornley, Rev. A., M.A., F.L.S.	287
Osten Sacken, Baron C. R., Ph.D., Hon. F.E.S.	172, 204, 228	Thouless, H. J.	80, 86
Porritt, G. T., F.L.S.	213, 221, 264	Tuck, W. H., M.A.	242
Prout, L. B., F.E.S.	87, 263	Turner, H. J., F.E.S.	16, 17, 44, 72, 92, 116, 133, 187, 252, 273
Reid, Percy C., F.E.S.	221, 222	Verrall, G. H., F.E.S.	8, 108
Reuter, Prof. O. M.	102	Wainwright, C. J., F.E.S.	14, 43, 70, 90, 136, 187, 226, 290
Richardson, N. M., B.A., F.E.S.	13	Walker, James J., R.N., F.L.S.	189
Robson, J. E., F.E.S.	67	Waller, Rev. A. P., M.A., F.E.S.	247
Rothschild, Hon. N. C., M.A., F.E.S.	225	Wallington, A. G.	7
Routledge, G. B., F.E.S.	287	Walsingham, Rt. Hon. Lord, M.A., LL.D. F.R.S.	7, 28, 81, 163
Rowland-Brown, H., M.A., F.E.S.	19, 46, 72, 93, 118, 139, 162, 189, 274	Waterfall, W. B.	9
Saunders, E., F.R.S., &c.	51, 106, 140, 159, 223, 242	Webb, Sydney	286
		Wood, Rev. Theodore, F.E.S.	287
		Worsley-Benison, H. W. S., F.L.S.	113

GENERAL INDEX.

	PAGE
<i>Acanthopsyche atra</i> , L., Dipterous parasite of	111
<i>Acidalia rusticata</i> in Devon	286
<i>Acletoxenus formosa</i> , Lw., syrphoides, Frauenfeld (Plate i), 1, 282; at Cambridge, 285; Lyndhurst	110
<i>Acosmetia caliginosa</i> in the Hebrides	184
Aden, Three new Lepidoptera from	175
<i>Aëpophilus Bonnairei</i> on the North Devon Coast	9
<i>Æschna mixta</i> , Abundance of, in South Devon	264
Africa, Notes on Lepidoptera from South	123
Agrioninæ near Oxford	185
Algerian Butterflies in February, March, April, 1902	274
<i>Andrena ferox</i> , Sm., other Aculeate Hymenoptera and <i>Stylops melittæ</i> , Kirby, in East Kent, 182; The concealed ventral segments and genital armature of ♂	171
<i>Anosis Plexippus</i> (<i>Danais Archippus</i>), in the Isle of Wight, 1896	113
<i>Ant</i> , A remarkable instance of deliberation observed in an American	172
<i>Antennal</i> movements in a decapitated Stag Beetle	242

	iii. PAGE
<i>Anthicus scoticus</i> in the Isle of Man	133
Antipodean Field Notes. I.—New Caledonia, the New Hebrides, and adjacent Islands	189
Ants displaced by wood-lice in New Zealand	132, 160, 266
<i>Apatania</i> , Females of Arctic and Northern species of, Plate iii, 150; <i>muliebris</i> , McL., in Lanarkshire	10
<i>Apis mellifica</i> , A scent-producing organ in the abdomen of	208
<i>Aporia crataegi</i> in Britain, Historical Notes on	157
<i>Argyresthia Atmoriella</i> , Bnks., On the flight time of	245
<i>Astatus</i> , Two new palæarctic species of	104
<i>Atherix crassipes</i> , Mg., Re-occurrence of	7
<i>Atomoscelis pilosulus</i> , Uhler, in Arizona	182
<i>Bagous lutosus</i> , a British insect	240
Bamboo Coccids in Algeria	86
<i>Bembidium argenteolum</i> , Ahr., at Lough Neagh	218
Berkshire, Hymenoptera near Wellington College	265
<i>Blaps mortisaga</i> : a correction	88
British Museum collection of British Lepidoptera	221
Brittany, St. Briac, Hymenoptera Aculeata of	140
<i>Byblia Götzius</i> , Herbst, On the specific value of	46
Carbolic acid as a preventive of mildew and preserver of collections	68, 88
Castelnau Collection	8
<i>Catoptria ulicetana</i> , Hw., Albinic aberration of	240
<i>Ceropales variegatus</i> , F., at Woking	223
<i>Ceuthorrhynchidius Dawsoni</i> , Bris., in the Isle of Man, 178; <i>mixtus</i> , Muls. and Rey, near Woking	184
Ceylon, Aquatic Orthoptera in	214
Channel Islands, Hymenoptera Aculeata of	140
<i>Chrysoclamys ruficornis</i> , F., in the New Forest	110
<i>Chrysopa tenella</i> , A dwarfed example of	248
Cicadine new to Britain	215
<i>Cicadina</i> (<i>Stictocoris flaveola</i>), An additional British species of... ..	5
<i>Cionus luctuosus</i> , Boh., at Tenerife... ..	220
<i>Ciseites Debeyi</i> , Fairm., Early stages of the Meloid beetle	232
<i>Oleodora cytisella</i> , Curt., at Hastings, Occurrence of the larvæ of	256
Coccidæ, three new genera from Ceylon	260
Coccids, Bamboo, in Algeria	86
<i>Cœnonympha Pamphilus</i> , An albinic variety of	245
<i>Coleophora milvipennis</i> , Zell., new to Britain	79
Coleoptera in East Kent, 1901, 73; in a Berwickshire M. ss., 242; of the Brent Valley, 1901, 64; at Briton Ferry, S. Wales, 8; at Cromer, 9; from East Kent, 219; at Greenhithe and Charing, Kent, 179; &c., in the neighbourhood of Hastings, 38; in Ireland during May and June, 1902, 177; in Miller's Dale, 180; at Rannoch, 179; &c., at Woking	219
<i>Coremia didymata</i> , The hibernating stage of	87
Cornwall, Hymenoptera Aculeata at Newquay, 11; Trichoptera from	112, 265
Corsica, New Micro-Lepidoptera from	81
<i>Crabro interruptus</i> storing <i>Ogcodes gibbosus</i>	205

	PAGE
<i>Crambus fascelinellus</i> at Dovercourt, 247; hamellus at Chobham ...	286
<i>Crinopteryx familiella</i> de Peyerimhoff, 93; bred in England ...	285
<i>Cryptophilus integer</i> , Heer, in London ...	88
<i>Otenophora flaveolata</i> , F., in the New Forest ...	270
<i>Dasypolia templi</i> near Halifax, Abundance of ...	66
Derbyshire, Coleoptera in Miller's Dale ...	180
Devon, Lepidoptera at Morthoe, 19; Neuropterous fauna of Eastern-South ...	235
<i>Dianthocia carpophaga</i> , The white variety of ...	221
<i>Diastictus vulneratus</i> , Sturm, an addition to the British list, 253; Supplementary note on... ..	254
Diptera (Fam. Borboridæ), four new species found in Britain, 55; in the New Forest, 1901, 84; List of British, 2nd Ed., 8; Notes and queries on, 107, 108; On a distinctive character of the Imago of the Sub-orders, Orthorrhapha brachycera and Cyclorrhapha athericera, 228; The position of Phora in the System ...	204
Dipterous parasite of <i>Acanthopsyche atra</i> , L. (opacella, H.-S.) ...	111
Dragon-flies and other Neuroptera in the New Forest, 213; hibernating ...	288
<i>Ectopseocus Briggsi</i> , McLach., at Bognor ...	288
Egg-laying of <i>Nonagria sparganii</i> ...	67
<i>Ellampus truncatus</i> , Dahlb., confirmed as British ...	170
<i>Encyrti</i> wanted ...	132
Essex, Aculeates at Colchester, in 1902 ...	266
<i>Euocera longicornis</i> , Linn., The identity of... ..	159
<i>Eupithecia dodoneata</i> , Notes on the larvæ of, 231; innotata at Aldeburgh ...	247
<i>Fiorinia Suloi</i> , Newstead, in France ...	86
Fleas, New British ...	225
<i>Formica exsecta</i> in South Devon, 266; sanguinea, A nest of, and other Hymenoptera near Wellington College ...	265
France, New Micro-Lepidoptera from ...	81
Galls of <i>Oligotrophus annulipes</i> ...	8
<i>Gelechiadæ</i> , A new genus of... ..	103
Gerridæ, On the thorax of ...	258
<i>Gnorimus nobilis</i> near London ...	268
<i>Gynandrophthalma affinis</i> , Hellw., a genus and species of Coleoptera new to Britain ...	281
<i>Hedychrum rutilans</i> , Dhlb., and <i>H. fervidum</i> , Sm., nec F. ...	83
Hemiptera-Heteroptera from Spain, two new species ...	102
<i>Hepialus humuli</i> in the Faerøe Islands ...	263
<i>Hister merdarius</i> , A colony of ...	268
<i>Histeromerus mystacinus</i> , Wesm., in Devonshire... ..	288
<i>Holocentropus picicornis</i> , Steph. (Trichoptera), A black variety from S. W. Ireland ...	112
<i>Homalota liturata</i> , Steph., On the pairing of ...	181
<i>Hydradephaga</i> at Askham Bog ...	132
<i>Hyetodesia vagans</i> , Flin., confirmed as British ...	85
Hymenoptera Aculeata at Colchester in 1902, 266; at Criccieth, Lyndhurst, and Newquay, 11; in East Kent, 73; near Hayward's Heath, 223; collected by Col. Yerbury in S. W. Ireland, 51; of Jersey, Guernsey, Alderney, and St. Briac, Brittany, 140; in North Wales in 1902 ...	237

	6.	PAGE
<i>Icerya seychellarum</i> , Westw., in South Africa	86	86
<i>Ichneumonidæ</i> of the older British Authors	118	118
<i>Ichneumons</i> , Recorded localities for British	249	249
Ireland, <i>Coleoptera</i> in, 177; <i>Hymenoptera</i> collected in the South-West of ...	51	51
<i>Ischnura pumilio</i> in Ireland	186	186
Kent, <i>Andrena ferox</i> and other <i>Aculeate Hymenoptera</i> and <i>Stylops melittæ</i> , Kirb., in, 182; <i>Coleoptera</i> from, 219; at Greenhithe and Charing, 179; <i>Coleoptera</i> and <i>Hymenoptera</i> in East... ..	73	73
Lac de Joux (Swiss Jura), <i>Psocidæ</i> from	176	176
<i>Læmophilæus bimaculatus</i> near Guildford... ..	287	287
<i>Læmostenus complanatus</i> , Dej., at Plymouth, 268; at Woolwich, 287; in Ire- land, an addition to the British fauna, 216; a British insect	241	241
Larvæ of <i>Cleodora cytisella</i> , 256; <i>Sphinx convolvuli</i> in Northumberland ...	67	67
<i>Lasiosomus enervis</i> , H.-S., near Doddington, Kent	66	66
<i>Lathrobium atripalpe</i> , 88; and other <i>Coleoptera</i> in N. Yorkshire	111	111
<i>Lepidoptera</i> in Algeria (<i>Butterflies</i>), 274; from Aden, Three new, 175; in the Montreux district, 243; at Morthoe, N. Devon, 19; in the New Forest, June, 1902, 221; in Suffolk, 1901, 6; in Tenerife, Winter <i>Butterflies</i> , 131; in Wilts, 222; Notes on South African, 123; The National Col- lection of British	160	160
<i>Leptinus testaceus</i> , &c., near Bradfield, <i>Gnorimus nobilis</i> near Towcester, and <i>Meloe brevicollis</i> from South Devon	179	179
<i>Lestes Dryas</i> , Kirb. (nymphæ, Selys), in Lincolnshire	264	264
<i>Leucania albipuncta</i> in Suffolk, 263; <i>favicolor</i> , Bartr.	220	220
<i>Leuctra</i> , The British species of	255	255
<i>Limnichini</i> (<i>Coleoptera</i> , Fam. <i>Byrrhidae</i>), Descriptions of Oriental	61	61
<i>Limotettix stactogala</i> , Am., 215; Additional localities for	248	248
<i>Lipopterna cervi</i> , Habits of	68	68
<i>Lithosia deplana</i> , Esp., On the variation and habits of... ..	229, 263	229, 263
<i>Lopus flavomarginatus</i> , Don., in Blean Wood, and <i>Paragus bicolor</i> at St. Mar- garet's Bay	86	86
<i>Luperina testacea</i> , Hb., at treacle	222	222
<i>Lycæna Acis</i> in Britain, Historical Notes on, 76, 112; <i>Arion</i> , &c., in Cornwall, 220; <i>Corydon</i> , A small form of, in Oxfordshire, 244; <i>Hylas</i> , Esp., in Britain	286	286
<i>Macrophysa hæmatopus</i> , Pz., a British insect?	207	207
<i>Macropis labiata</i> , Pz., and <i>fulvipes</i> , F.	88	88
Malaria Committee of the Royal Society, The Report to the	85	85
<i>Masicera virilis</i> , Rdi., Notes on	226	226
<i>Melanthia albicillata</i> , New food-plant for	264	264
<i>Meloe rugosus</i> , at Broadstairs	287	287
<i>Metallites marginalis</i> , Steph., on birches near Henley-on-Thames	269	269
<i>Metacoelus paradoxus</i> in a nest of <i>Vespa vulgaris</i> 30 feet from the ground ...	242	242
<i>Microgaster</i> , A new species of	4	4
Micro-Lepidoptera, New Corsican and French, 81; Revision of the Nomen- clature of	28, 163	28, 163
<i>Micropterygidæ</i> , An Australian species of	60	60
<i>Micro-Trichopteron</i> , A new Indian	288	288
<i>Miscodera arctica</i> in Cumberland	287	287

	PAGE
Middlesex, Coleoptera of the Brent Valley	64
Mildew, The efficacy of glacial carbolic acid as a preventive of	68, 88
<i>Miris lævigatus</i> , A melanic aberration of	224
<i>Nabis brevis</i> , Scholtz, and other Hemiptera at Woking	269
National Collection of British Lepidoptera	160
<i>Nemeobius Lucina</i> in Glamorganshire	184
Neuroptera in the New Forest, 213; in Spain, 33; in North Wales, 34; Planipennia collected in Central Spain by Dr. T. A. Chapman and Mr. G. C. Champion in July and August, 1901	129
Neuropterous Fauna of Eastern South Devon	235
New Forest, Diptera in the, 1901, 84; Dragon-flies and Neuroptera in the, 213; Hymenoptera Aculeata at Lyndhurst, 11; Lepidoptera in the	221
Newspaper Entomology	183
New Zealand, Ants displaced by Woodlice	132, 160, 266
<i>Noctua plecta</i> , L., in April	246
<i>Nomada armata</i> at Colchester	66
<i>Nonagria sparganii</i> , Note on the egg laying of	67
Norfolk, Coleoptera at Cromer	9
<i>Nyssia lapponaria</i> , The habits of	222
<i>Nyxeophilus corsicus</i> , Marsh., an addition to our fauna, with a description of the male	173
OBITUARIES: Bassett, Homer Franklin, 289; Berg, Prof. Carlos, C.M.Z.S., F.E.S., 114; Kriechbaumer, Dr. Joseph, 288; May, John William, F.E.S., 186; Nicéville, Charles Lionel Augustus de, F.E.S., &c., 41; Tosquinet, Dr. Pierre Jules, 289; Vivian, Henry Wyndham, M.A., F.E.S., 13; Wakefield, Charles Marcus, J.P., F.L.S., F.E.S.	135
Odonata, An Annotated List of, collected in Central Spain by Dr. T. A. Chap- man and Mr. G. C. Champion in July and August, 1901, 148; from the Chamonix Valley	87
<i>Odynerus bifasciatus</i> , L., an addition to the list of British Hymenoptera	106
<i>Ogcodes gibbosus</i> stored by <i>Crabro interruptus</i>	206
<i>Oligotrophus annulipes</i> , The galls of	8
<i>Omalius septentrionis</i> , Thoms., in Cumberland	268
<i>Ophiodes lunaris</i> in Delamere Forest	7
<i>Orthezia floccosa</i> , D. G.	234
Orthoptera, Aquatic, in Ceylon, 214; at Redhill	9
<i>Osmia manicata</i> , Morioe, Note on, with description of the female	81
<i>Osphya bipunctata</i> , F., in East Gloucestershire	181
<i>Otiorrhynchus blandus</i> , Gyll., in the Isle of Man, 219; <i>ligustici</i> , L., at Mat- lock, 269; <i>tenebriosus</i> and <i>O. fuscipes</i>	240
Oxford, Agrioninæ near	185
<i>Pachyprotasis antennata</i> : a correction	184
<i>Panchlora exoleta</i> , Klug (Blattidæ), imported into Scotland	247
<i>Panolis griseovariegata</i> , Goeze (piniperda), Occurrence of, in June	264
<i>Papilio Machaon</i> at Chippenham Fen, 66; at Ely in 1901, 87; Historical Notes on, in England	37
<i>Pentatoma fuscispina</i> on the North Essex Coast	66
<i>Pericoma punctum</i> , Eaton, Concerning Mr. Dale's	122

	vii. PAGE
<i>Phaeopteryx brevipennis</i> , Ct., On the larval case and habits of ...	185
<i>Phlogophora meticulosa</i> , L., in December ...	113
Phora, The position of, in the System of Diptera ...	204
<i>Pogonius luridipennis</i> on the Lincolnshire coast ...	287
Porcupine Louse ...	182
<i>Prionocyphon serricornis</i> in Epping Forest ...	220
<i>Psammotis pulveralis</i> , Hb., in the Isle of Purbeck ...	245
<i>Pseudophleus Waltlii</i> , H.-S., a species new to the British Fauna ...	80
Psocidæ from the district of the Lac de Joux (Swiss Jura) ...	176
<i>Psychopsis</i> , A second African species of, <i>Ps. Marshalli</i> , McLach. ...	234
Pterophoridaæ, A new European species of ...	217
<i>Quedius obliteratus</i> , Er., confirmed as British ...	147
REVIEWS: "Monograph of the Coccidæ of the British Isles:" by R. Newstead, F.E.S., 12; "Handbook of the Natural History of Glasgow and the West of Scotland," 39; "Insect Life: Souvenirs of a Naturalist:" by T. H. Fabre, 40; "A List of British Diptera, 2nd Edition:" by G. H. Verrall, 68; "Insects Injurious to Staple Crops:" by E. D. Sanderson, 69; "Die Phoriden:" by Th. Becker, 69; "The Victoria History of the Counties of England: Surrey," 89; "Genera Insectorum," 90; "A List of the Hymenoptera Aculeata of Lancashire and Cheshire:" by Willoughby Gardner, F.L.S., &c., 114; "First Report of the (Natal) Government Entomologist:" by Claude Fuller, 134; "The Butterflies and Moths of Europe:" by W. F. Kirby, F.L.S., 134; "Proceedings of the South London Entomological and Natural History Society for 1901," 250; "Orchard and Bush-Fruit Pests, and how to Combat them:" by Cecil Warburton, M.A., F.Z.S., 251; "A List of the Beetles of Ireland:" by the Rev. W. F. Johnson, M.A., F.E.S., and J. N. Halbert, 251; "A Natural History of the British Lepidoptera, a Text Book for Students and Collectors:" by J. W. Tutt, F.E.S., 270; "Second Report of the (Natal) Government Entomologist, 1901:" by Claude Fuller ...	271
<i>Rhizotrogus ochraceus</i> , Knoch, confirmed as British ...	218
<i>Rhogas circumscriptus</i> , Nees ...	10
<i>Salda c-album</i> and <i>vestita</i> , D. & S. ...	86
<i>Saperda scalaris</i> , L., at Bretby Park, Derbyshire, 269; in Cumberland ...	287
Sawflies, On two British ...	158
Scent producing organ in <i>Apis mellifica</i> ...	208
<i>Sciocoris cursitans</i> , F., at Box Hill ...	39
Scotland, Coleoptera at Rannoch, 179; in a Berwickshire Moss ...	242
<i>Senta maritima</i> (ulvæ), <i>Acidalia emutaria</i> , and <i>Agdistis Bennetti</i> in East Suffolk ...	247
<i>Silpha atrata</i> , L., var. <i>subrotundata</i> , Steph., in the Isle of Man ...	238
<i>Sirex gigas</i> , L., and <i>juvencus</i> , L., in Herts and Norfolk, 84; <i>juvencus</i> , L., in Paternoster Row, London ...	112
SOCIETIES: Birmingham Entomological Society, 14, 41, 70, 90, 135, 187, 289; Entomological Society of London, 17, 44, 72, 92, 116, 138, 161, 188, 273, 291; Lancashire and Cheshire Entomological Society, 14, 42, 70, 114, 136, 290; South London Entomological, &c., Society, 15, 43, 72, 90, 115, 137, 187, 252 ...	271

	PAGE
Spain, Neuroptera Planipennia in Central, 129; Neuroptera in, 33; Two new species of Hemiptera-Heteroptera	102
Sphecodes rubicundus, v. Hag., near Ripley and Chobham	184
Sphinx convolvuli, L., at Merton, Norfolk, 1901, 87; in Northumberland, Larvæ of, 67; The pupa of, in England	113
Stenostola ferrea, Schrank, at Barmouth	268
Stictocoris flaveola, Bohm., an additional species of British Cicadina	5
Strachia oleracea, L., in East Kent, 182; picta, probably imported with fruit... ..	86
Stridulation, Field Notes on... ..	249
Stylopid attracted by light	219
Suffolk, Lepidoptera in, 1901	6
Surrey, Coleoptera, &c., of Esher district, 241; at Woking, 219; Orthoptera at Redhill	9
Some water beetles of the Esher district	241
Sussex, Coleoptera, &c., in the neighbourhood of Hastings, 38; Hymenoptera at Hayward's Heath	223
Sympetrum scoticum: does it hibernate?	265
Tachys parvulus, Dej., at Horsell, 112; in the New Forest	65
Tæniocampa gracilis, var. rufescens, Okll., in East Dorset	246
Tenerife, Winter Butterflies in	131
Tenthredinidæ, On two British Sawflies	158
Thaumatonera inopinata, McLachlan, On the systematic position of	29
Tinea angustipennis in North-West Kent	131
Triænodes conspersa, Rbr., commonly in S. Devon	212
Trichoptera, A few, from Llanfairfechan, 248; from West Cornwall, 112, 265; Planipennia and Odonata collected by Lord Walsingham in the vicinity of Granada, Spain, 33; and Pseudo-Neuroptera collected in North Wales in July, 1901	34
Trichopteron, A new Indian Micro-	283
Trigonogenius globulum at Hoylelake	9
Variation in Lithosia deplana, Esp.... ..	263
Wales, Aculeates in North, 267; A few Trichoptera from Llanfairfechan, 248; Coleoptera at Briton Ferry, 8; Hymenoptera Aculeata at Criccieth, 11; Neuroptera in	33
Walsingham Collections	7
Wasps in Ireland and Berkshire, a specific comparison	223
Water beetles of the Esher district	241
Wilts, Lepidoptera in	222
Woodlice displacing Ants in New Zealand	132, 160, 266
Xanthia ocellaris at Ipswich	263
Xenolechia æthiops in Dumbartonshire	161
Xylocopea tenuiscapa, Westw., On some parasites of	232
Yorkshire, Coleoptera in	111
Zygoptera, Some remarks on the Classification of the Sub-Order	29

SPECIAL INDEX.

COLEOPTERA.		PAGE
Actobius procerulus	65	
Aëpus marinus	177	
Agabus abbreviatus, 133; congener, 287; uliginosus, unguicularis	183	
Alophus triguttatus	219	
Amara consularis, patricia	180	
Amphicyllis globus	75	
Anaspis Garneysi	111	
Anchomenus quadripunctatus	219	
Ancistronycha abdominalis	179, 180	
Anthicus scoticus	133	
Anthonomus comari	241	
Apion limonii	76	
Apoderus coryli	180	
Asemum striatum	179	
Astynomus ædilis	179	
Atemeles emarginatus	74	
Badister peltatus, 38, 219; unipustula- tus	38	
Bagous cylindrus, 39; lutosus, 240; no- dulosus	39	
Barynotus Schönherrii	177	
Barypeithes sulcifrons	177	
Bembidium affine, 9; argenteolum, 178, 218; bipunctatum, 65, 178; doris, 180, 219; nigricorne, 287; obliquum, 65, 219; quinquestriatum	180	
Bidessus geminus	241	
Blaps similis	88	
Blethisa multipunctata	178	
Bolitochara obliqua	242	
Brachytarsus fasciatus	75	
Bradycellus placidus	9	
Bruchus atomarius, cisti	75	
Bythinus securiger	179	
Caccothryptus compactus (gen. et sp. n.), Sharp	63	
Cænocara bovista	74	
Cænopsis fissirostris	38	
Callidium alni	75	
Calodera æthiops	64	
Carabus clathratus, 178; monilis, var. consitus	219	
Carpophilus hemipterus	64	
Cetonia floricola	179	
Ceuthorrhynchidi Dawsoni, 178; mix- tus, 184; versicolor	242	
Ceuthorrhynchus constrictus, 65; seto- sus	219	
Chrysomela Banksi	177	
Cilleus lateralis	178	
Cionus luctuosus	220	
Claviger foveolatus	74	
Clytus mysticus	75	
Cœlambus confluens, &c., 241; decoratus, 133; novemlineatus, 178; quinque- lineatus	178	
Cœliodes exiguus	219	
Conopalpus testaceus	75	
Corymbites impressus, 179; tessellatus, 64, 242	179	
Cryptarcha strigata	179	
Cryptocephalus bilineatus, 74; bipuncta- tus, coryli, 179; lineola, 180; no- vemlineatus, 178; sexpunctatus	74	
Cryptophilus integer	88	
Cyphonichus orientalis (sp. n.), Sharp	63	
Deronectes assimilis	178	
Diastictus vulneratus	253	
Diglossa mersa	178	
Dorcatoma chrysomelina	65	
Dryophilus pusillus	111	
Dyschirius obscurus, 218; politus	8	
Dytiscus circumflexus	75	
Elater nigrinus	179	
Elenchus tenuicornis	219	
Euconnus denticornis	219	
Eutheia plicata	219	
Evæsthetus læviusculus	64	
Gnorimus nobilis	179, 268	
Gymnetron beccabungæ	242	
Gynandrophthalma affinis	281	
Gyrinus marinus, opacus, 178; minutus, 241		
Hæmonia appendiculata	178	
Hapalaræa pygmæa	64	
Hedobia imperialis	75	
Hister merdarius	268	
Homalota elegantula, 74; fragilis, 111; litrata, 181; scapularis	95, 219	
Homœusa acuminata	74	
Hydaticus seminger	241	
Hydrophilus piceus	75	
Hydroporus lepidus, lineatus, 178; morio, 178, 287; oblongus, 133; obscurus, 178, 241; marginatus, 88; rivalis, 178; tristis, 178, 241; umbrosus, 133, 241		

	PAGE
<i>Hydrothassa marginella</i>	242
<i>Hypophloeus bicolor</i>	75
<i>Ilybius ænescens</i> , 241; <i>guttiger</i>	133
<i>Lacoeophilus variegatus</i>	89
<i>Læmophilus bimaculatus</i>	287
<i>Læmostenus complanatus</i> ..216, 241, 268, 287	
<i>Lathrobium atripalpe</i>	86, 111
<i>Leptinus testaceus</i>	179
<i>Licius depressus</i> , <i>silphoides</i>	75
<i>Liodes orbicularis</i>	179
<i>Liparus coronatus</i>	179
<i>Lucanus cervus</i>	242
<i>Lyctus brunneus</i>	65
<i>Lytta vesicatoria</i>	179
<i>Magdalinus carbonarius</i>	242
<i>Malachius marginellus</i>	75
<i>Malthodes atomus</i> , 179; <i>misellus</i>	111
<i>Maudersia scymnoides</i> (gen. et sp. n.), Sharp	62
<i>Medon oboletus</i>	219
<i>Meloë brevicollis</i> , 179; <i>rugosus</i>	286
<i>Metallites marginatus</i>	269
<i>Metusus paradoxus</i>	75, 242
<i>Miscodera arctica</i>	287
<i>Mordella aculeata</i> , <i>fasciata</i>	74
<i>Mordellistena abdominalis</i> , <i>brunnea</i>	75
<i>Mycetophagus piceus</i>	75
<i>Nebria complanata</i> , 8; <i>Gyllenhali</i> , 178; <i>livida</i>	9
<i>Necrophorus interraptus</i>	179
<i>Nitidula rufipes</i>	219
<i>Ocypus fuscatus</i> , <i>similis</i>	219
<i>Odontæus uniblicornis</i>	219
<i>Omalium septentrionis</i>	268
<i>Oodes helopioides</i>	9, 38
<i>Opilo mollis</i>	65
<i>Orectochilus villosus</i>	178
<i>Oephyra bipunctata</i>	181
<i>Otiorrhynchus auropunctatus</i> , 178; <i>blau-</i> <i>dus</i> , 219; <i>fuscipes</i> , 240; <i>ligustici</i> , 269; <i>raucus</i>	180
<i>Oxytelus Fairmairei</i>	134
<i>Pachyta cerambyciformis</i>	268
<i>Panagæus crux-major</i> , 38; <i>quadripustu-</i> <i>latus</i>	180
<i>Pelophila borealis</i>	178, 218
<i>Philonthus atratus</i>	65
<i>Phyllobius viridicollis</i>	180
<i>Phytocia cylindrica</i>	75, 179
<i>Phytobius quadrituberculatus</i>	242
<i>Phytosus balticus</i>	178
<i>Pissodes notatus</i>	219

	PAGE
<i>Plinthus caliginosus</i>	219
<i>Pogonocherus fasciculatus</i>	179
<i>Pogonus luridipennis</i>	287
<i>Polydrusus chrysomela</i>	178
<i>Prionocyphon serricornis</i>	220
<i>Prognatha quadricornis</i>	64
<i>Pseudostyphlus pilumnus</i>	65
<i>Pytho depressus</i>	179
<i>Quedius brevis</i> , 75; <i>obliteratus</i>	147
<i>Rhagium indagator</i>	179
<i>Rhagonycha unicolor</i>	111
<i>Rhantus bistriatus</i> , <i>exoletus</i>	241
<i>Rhinomacer attelaboides</i>	179
<i>Rhinoncus denticollis</i>	180
<i>Rhinosimus viridipennis</i>	242
<i>Rhizophagus dispar</i>	242
<i>Rhizotrogus ochraceus</i>	218
<i>Rhopalomesites Tardii</i>	178
<i>Rhynchites conicus</i>	75
<i>Sedpingus castaneus</i>	179
<i>Saperda scalaris</i>	269, 287
<i>Saprinus maritimus</i> , 175; <i>virescens</i>	179
<i>Sericosomus brunneus</i>	242
<i>Silpha atrata</i> , var. <i>subrotundata</i> , 178, 226; <i>dispar</i>	178, 218
<i>Sitones cambricus</i> , 219; <i>meliloti</i>	65
<i>Staphylinus pubescens</i>	178
<i>Stenolophus vespertinus</i>	64
<i>Stenostola ferrea</i>	268
<i>Stenus palposus</i>	218
<i>Stilicus fragilis</i>	64
<i>Stylops melittæ</i>	182, 219
<i>Syntomium æneum</i>	219
<i>Tachinus scapularis</i>	219
<i>Tachyporus obtusus</i> , var. <i>nitidicollis</i>	178
<i>Tachypus pallipes</i>	9
<i>Tachys parvulus</i>	66, 112
<i>Tachyusa concolor</i> , <i>flavitaris</i>	65
<i>Telephorus darwinianus</i> , 178; <i>lateralis</i> , 65; <i>paludosus</i> , 179; <i>thoracicus</i>	64, 219
<i>Throscus carinifrons</i>	219
<i>Trachyploeus alternans</i> , 180; <i>myrmeco-</i> <i>philus</i>	30, 180
<i>Trigonogenius globulum</i>	9
<i>Tropiphorus carinatus</i> , 75; <i>mercurealis</i>	179
<i>Tychius meliloti</i> , 65; <i>Schneideri</i>	180

DIPTERA.

<i>Aciura rotundiventris</i>	84
<i>Acletoxenus formosus</i> , <i>syrrhoides</i>	1, 110, 283, 285

	PAGE
<i>Agromyza ornata</i>	2
<i>Anomæa antica, permunda</i>	108
<i>Anopheles Christophersi, Rossi</i>	85
<i>Anthrax fenestrata</i>	206
<i>Atherix crassipes</i>	7
<i>Aulacigaster rufitarsis</i>	1
<i>Bibio clavipes</i>	84
<i>Bombylius</i>	53
<i>Borborus hyalipennis, nervosus, 57; niger, 56; nitidus, notabilis, 55; punctipennis, 57; Roseri, suillorum</i>	56
<i>Callicera ænea</i>	84
<i>Calliprobola speciosa</i>	206
<i>Cecidomyia pictipennis</i>	109
<i>Ceratophyllus Gareii, lagomys, Walkeri</i>	225
<i>Ceratopogon</i>	109
<i>Ceromasia sordidissima, Wulpii</i>	227
<i>Chilosia carbonaria</i>	110
<i>Chironomus dolens, 109; fuscipennis, 110; modicellus, tarsalis</i>	109
<i>Chrysoclamys ruficornis</i>	84, 110
<i>Ctenophora flaveolata</i>	270
<i>Culex concinnus, 107; guttatus</i>	109
<i>Cyclorrhapha athericera</i>	228
<i>Degeeria muscaria, ornata</i>	228
<i>Didea fasciata</i>	206
<i>Diomyza pulchra</i>	107
<i>Ditomyia fasciata</i>	110
<i>Empia nigratarsis</i>	84, 282
<i>Gitona, 1; formosa</i>	3, 282
<i>Heteroneura albimana</i>	108
<i>Hormomyia piligera</i>	8
<i>Hyalurgus lucidus</i>	110
<i>Hydrophoria fusca</i>	8
<i>Hydrotæa glabricula, parva</i>	8
<i>Hyetodesia vagans</i>	8, 85, 110
<i>Lasioptera rubi</i>	107
<i>Leptomorphus Walkeri</i>	84
<i>Limosina fontinalis, fuscipennis, geniculata, 59; Halidayi, 58; limosa, lutosæ, mirabilis, roralis, zosteræ</i>	59
<i>Lipoptena cervi</i>	68
<i>Mallota cimiciformis</i>	85, 206
<i>Masicera virilis</i>	109, 226
<i>Merodon equestris</i>	206
<i>Microdon latifrons</i>	206
<i>Mycetophila lutescens, ornata, zonata</i>	108
<i>Mydæa longitarsis</i>	8
<i>Nemorea rubrica</i>	110
<i>Neottiophilum præstutum</i>	84
<i>Ogcodes gibbosus</i>	206
<i>Oligotrophus anaulipes</i>	8

	PAGE
<i>Oncomyia atra</i>	84
<i>Orimarga juvenilis, virgo</i>	108
<i>Orthorrhapha brachycera</i>	228
<i>Paragus bicolor</i>	86
<i>Pegomyia setaria, tenera</i>	8
<i>Pericoma punctum</i>	108, 132
<i>Phasia Rothi</i>	109
<i>Phora, 204; abdominalis</i>	84
<i>Phorbia humerella, trapezoides</i>	8
<i>Platychirus discimanus</i>	84
<i>Platypeza hirticeps</i>	84
<i>Platyura atrata, fasciata</i>	84
<i>Pocota apiformis, personatus</i>	108
<i>Pogonomyia alpicola, Meadei</i>	8
<i>Scatopse albitarsis</i>	107
<i>Siphona</i>	110
<i>Sphærocera curvina, 58; eximia</i>	57
<i>Stomatomyia filipalpis</i>	111
<i>Stomphastica flava</i>	84, 206
<i>Syrphus topiarius, torvus</i>	110
<i>Therioptectes luridus</i>	110
<i>Typhlopsylla agyrtes, assimilis</i>	108
<i>Urophora quadrifasciata</i>	84
<i>Xiphura ruficornis</i>	109
<i>Xysta cana</i>	109
<i>Zodion cinereum</i>	84

HEMIPTERA.

<i>Aërophilus Bonnairei</i>	9
<i>Amorphococcus mesuæ</i> (gen. et sp. n.), Green	261
<i>Anomalococcus cremastogastri</i> (gen. et sp. n.), Green	261
<i>Corizus maculatus</i>	270
<i>Fiorina Sulcii</i>	86
<i>Geococcus radicans</i> (gen. et sp. n.)	262
<i>Icerya seychellarum</i>	86
<i>Lasiosomus enervis</i>	66
<i>Limotettix stactogala</i>	215, 248
<i>Lopus flavomarginatus</i>	86
<i>Miris lævigatus</i>	224
<i>Mytilaspis bambusicola</i>	86
<i>Nabis brevis</i>	269
<i>Nasocoris ephedræ</i> (sp. n.), Reut.	108
<i>Odonaspis secretus</i>	86
<i>Orthezia (Newsteadia) floccosa</i>	284
<i>Pentatoma fuscispina</i>	66
<i>Piezostethus terrioola</i> (sp. n.), Reut.	284

	PAGE
<i>Pseudophloeus Waltlii</i>	80
<i>Salda c-album, vestita</i>	87
<i>Sciocoris cursitans</i>	39
<i>Stictocoris flaveola</i>	5
<i>Strachia oleracea</i> , 182; <i>picta</i>	86

HYMENOPTERA.

<i>Abia candens, sericea</i>	54
<i>Agencia hircana, variegata</i>	287
<i>Alomyia semiflava</i>	121
<i>Ammophila campestris</i> , 286; <i>hirsuta</i> , 267; <i>sabulosa</i>	266
<i>Andrena angustior</i> , 76; <i>argentata</i> , 266; <i>bimaculata</i> , 11; <i>Cetii</i> , 53; <i>ferox</i> , 76, 171, 182; <i>Hattorfiana</i> , 267; <i>lapponica</i> , 11; <i>lucens</i> , 267; <i>nigriceps</i> , 11; <i>niveata</i> , 76; <i>proxima</i> , 76, 183; <i>similis</i> , <i>simillima</i>	11
<i>Anthidium manicatum</i>	11
<i>Anthophora furcata</i> , 11; <i>quadrimaculata</i>	11, 146
<i>Apis mellifica</i>	208
<i>Astutus massiliensis</i> (sp. n.), Morice, 106; <i>pelops</i> (sp. n.), Morice	104
<i>Bembex rostrata</i>	143
<i>Bombus jonellus</i> , 54; <i>Latreillellus</i> , 11, 76; <i>Smithianus</i>	54, 146
<i>Calicurgus hyalinatus</i>	75, 267
<i>Cerceris arenaria, ornata</i>	266
<i>Ceropales variegatus</i>	223
<i>Colioxys acuminata</i> , 11, 53, 76; <i>brevis</i> , 146; <i>elongata</i> , 11, 53; <i>vectis</i>	11
<i>Colletes fodiens, marginatus</i> , 11; <i>montanus</i> , 53; <i>picistigma</i>	11
<i>Crabro cetratus, clavipes</i> , 52; <i>dimidiatus</i> , 11, 53; <i>interruptus</i> , 205; <i>vagus</i> , 11, 53; <i>Saundersi</i> , 144; <i>Wesmaeli</i>	11
<i>Dinetus pictus</i>	143
<i>Echthrus</i>	175
<i>Ellampus truncatus</i>	170
<i>Encyrti</i>	132
<i>Encera longicornis</i>	159
<i>Formica exsecta, sanguinea</i>	265
<i>Goniocryptus titillator</i>	55
<i>Gorytes bicinctus</i> , 267; <i>tumidus</i>	11
<i>Halictus brevicornis</i> , 145; <i>laevigatus</i> , 223; <i>pauillus</i> , 76, 145, 223; <i>punctatissimus</i>	53
<i>Hedychrum fervidum, rutilans</i>	88
<i>Histeromerus mystacinus</i>	288
<i>Hoplismenus semirufus</i>	123
<i>Hoplisis bicinctus</i>	267
<i>Huberia striata</i>	132

<i>Ichneumonides</i>	PAGE 118
<i>Macrophysa haematopus</i>	207
<i>Macropis fulvipes, labiata</i>	83
<i>Megachile argentata</i> , 11; <i>versicolor</i> , 76; <i>Willughbiella</i>	53, 76
<i>Melecta luctuosa</i>	11
<i>Methoca ichneumonides</i>	11, 265
<i>Microgaster suffolciensis</i> (sp. n.), Morley	4
<i>Myrmosa melanocephala</i>	11
<i>Nomada armata</i> , 66, 267; <i>bifida</i> , <i>flavoguttata</i> , 11; <i>fucata</i> , 76; <i>fuscicornis</i> , 146; <i>lateralis, obtusifrons</i> , 267; <i>Roberjotiana</i> , 53; <i>similis</i>	146
<i>Nyssor dimidiatus</i> , 11; <i>trimaculatus</i>	267
<i>Nyxeophilus corsicus</i>	173
<i>Odynerus bifasciatus</i> , 106; <i>gracilis</i> , 267; <i>melanocephalus</i> , 76, 183; <i>reniformis</i> , 267; <i>sinuatus</i> , 53; <i>trimarginatus</i>	11, 53
<i>Osmia aurulenta</i> , 11; <i>leucomelana</i> , 11, 76, 223; <i>manicata</i> , 81; <i>parietina, pilicornis, xanthomelana</i>	11
<i>Oxybelus mucronatus</i>	11, 143, 267
<i>Pachyprotasis antennata</i>	158, 186
<i>Passalocetus monilicornis</i>	53
<i>Philanthus triangulum</i>	143
<i>Pompilus approximatus</i> , 11, 267; <i>chalybeatus, cinctellus</i> , 11; <i>fumipennis</i> , 143; <i>niger</i> , 11, 52; <i>pectinipes</i> , 11; <i>pilosellus</i> , 143; <i>rufipes</i> , 11; <i>sexmaculatus</i> , 143; <i>unguicularis</i>	11, 53
<i>Probolus concinnus</i>	54, 119
<i>Prosopis brevicornis</i> , 11; <i>confusa</i> , 53, 76; <i>cornuta, dilatata</i> , 76, 223; <i>Masoni</i>	144
<i>Pseudagenia carbonaria</i>	143
<i>Rhogas circumscriptus</i>	10
<i>Salix affinis, pusillus</i>	11
<i>Sapyga 5-punctata</i>	11, 267
<i>Saropoda bimaculata</i>	11
<i>Schizoloma amicta</i>	55
<i>Scolia quadripunctata</i>	143
<i>Sirex gigas</i> , 84, 112; <i>juvencus</i>	84
<i>Sphexcodes hyalinatus</i> , 11; <i>longulus</i> , 223; <i>nigritulus</i> , 144; <i>rubicundus</i> , 11, 76; 184; <i>spinulosa</i>	267
<i>Sphex flavipennis</i>	143
<i>Spilocryptus ornatus</i>	54
<i>Stelis aterrima, phaeoptera</i>	267
<i>Strongylogaster cingulatus</i>	159
<i>Tachysphex lativalvis</i>	143
<i>Tenthredo atra</i>	54
<i>Tenthredopsis Coqueberti</i>	54
<i>Trichiosoma Latreillei</i>	54
<i>Trogus atrocaudatus, dissimulatus</i>	121
<i>Vespa austriaca</i>	53, 264
<i>Xylocopa tenuiscapa</i>	263

LEPIDOPTERA.

	PAGE
<i>Acala literana</i>	27
<i>Achæa Lienardi</i>	128
<i>Acidalia emutaria</i> , 6, 247; rusticata, 286; trigeminata	6, 221
<i>Acontia gephyrias</i> (sp. n.), Meyr.	175
<i>Acosmetia caliginosa</i>	184
<i>Agdistis Bennetti</i>	247
<i>Agrotis agathina</i> , obelisca, 22; ripæ ...	6, 220
<i>Anosia plexippus</i>	113, 192
<i>Apamea ophiogramma</i>	6
<i>Apisa canescens</i>	123
<i>Aporia cratægi</i>	167
<i>Artia villica</i>	6, 22
<i>Arge Galathea</i>	26, 220
<i>Argyresthia Andereggiella</i> , 28; <i>Atmori-</i> <i>ella</i>	245
<i>Argyria holocrossa</i> (sp. n.), Meyr.	176
<i>Belenois peristhene</i>	192
<i>Byblia Götzius</i>	46
<i>Calligenia miniata</i>	6
<i>Catoptria ulicetana</i>	246
<i>Cledeobia angustalis</i>	6
<i>Cleodora cytisella</i>	256
<i>Ctenonympha Pamphilus</i>	245
<i>Coleophora milvipennis</i>	79
<i>Coremia didymata</i> , 87; quadrifasciata ...	6
<i>Crambus contaminellus</i> , 7; fascelin- ellus, 247; hamellus	286
<i>Crinopteryx familiella</i>	93, 285
<i>Cucullia absynthii</i> , 22; africana, chrysota, consimilis, extricata, Hutchinsoni, pallidistria, terensis	126
<i>Danais hebridina</i> , petilia	197
<i>Dasycera Oliviella</i>	7
<i>Dasypolia templi</i>	66
<i>Deiopeia pulchella</i>	192
<i>Dianthecia carphaga</i>	221
<i>Dulichia fasciata</i>	125
<i>Erastria deceptor</i>	244
<i>Eriopus Latreillii</i>	127
<i>Euchromia purpurana</i>	7
<i>Eupithecia dodoneata</i> , 231; innotata	247
<i>Euchloë Belemia</i> , Belia, 276, 277; carda- mines, 244; Charlonia, 276, 277; Eupheno, 279; Falloui, Pechi ...	275, 277, 280
<i>Eurrhipia adulatrix</i>	127
<i>Gelechia celerella</i>	7
<i>Grammodes schematica</i> (sp. n.), Meyr. ...	175
<i>Hadena renisigma</i> , 127; suasa	6

xiii.

	PAGE
<i>Heliothis marginata</i> , 6; peltigera	23
<i>Hepialus humuli</i>	263
<i>Homœosoma sinuella</i>	7
<i>Holcopogon bubulcellus</i>	81
<i>Hypolimnas Bolina</i>	192
<i>Jamides carissima</i>	195, 202
<i>Leioptilus osteodactylus</i>	7
<i>Leucania albipuncta</i> , 263; favicolor, 220; unipuncta	22
<i>Leucophasia sinapis</i>	220
<i>Limacodes testudo</i>	6
<i>Limenitis Sibylla</i>	6
<i>Lithosia deplana</i>	229, 263
<i>Luperina testacea</i>	222
<i>Lycæna Abencerragus</i> , 276, 277; <i>Acis</i> , 76, 112; <i>Alsus</i> , 244; <i>Arion</i> , 220; <i>argio-</i> <i>lus</i> , 6; <i>Corydon</i> , 244; <i>Hylas</i> , 286; <i>Lysimon</i> , <i>Webbiana</i>	131
<i>Macaria alternata</i> , 221; notata	6
<i>Mamestra abjecta</i>	6
<i>Melanchria composita</i> , mutans	182
<i>Melanthia albicillata</i>	264
<i>Melissoblatæes bipunctatus</i>	7
<i>Nemeobius Lucina</i>	184
<i>Nepitula apicella</i> , cryptella, filipendulæ ..	223
<i>Nisoniades Tages</i>	244
<i>Noctua plecta</i> , 246; rhomboidea	6
<i>Nonagria sparganii</i>	67
<i>Notodonta chaonia</i>	113
<i>Nyctegretes achatinella</i>	7
<i>Nyssia lapponaria</i>	222
<i>Ocophora lunaris</i>	7
<i>Olindia ulmana</i>	7
<i>Ophiodes lunaris</i>	7
<i>Orgyia bistigmigera</i>	125
<i>Orthosia suspecta</i>	6
<i>Palæomiera calliplaca</i> (sp. n.), Meyr.	60
<i>Panolis piniperda</i>	22, 264
<i>Papilio Amyntor</i> , 192; <i>Machaon</i> , 37, 66, 87, 276; <i>Montrouzieri</i> , 191, 201; <i>Hypicles</i>	199, 200
<i>Pieris cheiranthi</i>	131
<i>Phthorimæa operculella</i>	104
<i>Platyptilia leucorrhyncha</i> (sp. n.), Meyr. ...	217
<i>Plusia circumflexa</i> , exquisita, 126; limbi- rena, 127; moneta, 223; permissa ...	126
<i>Polia xanthomysta</i>	122
<i>Porthesia chrysorrhœa</i>	6
<i>Psammotis pulveralis</i>	245
<i>Pseudochelaria Walsinghami</i>	28
<i>Pyrameis cardui</i>	28

	PAGE
<i>Rhodophaea formosa</i>	7
<i>Rigema ornata</i>	124
<i>Röselstammia Erlebella</i>	223
<i>Soodiona belgiaria</i>	221
<i>Scoparia lineola</i>	6
<i>Sesia formicaeformis</i>	221
<i>Senta maritima</i>	223, 247
<i>Sphingomorpha chlorea</i>	128
<i>Sphinx convolvuli</i>	25, 67, 87, 113, 182
<i>Spilodes palealis</i>	6
<i>Spilothyrus alcea</i>	276
<i>Tachyris Ega</i>	192
<i>Taeniochema gracilis</i>	246
<i>Taenipyga sylvana</i>	125
<i>Teracolus Nouna</i>	275, 277, 278, 279
<i>Thais rumina</i>	280
<i>Thecla quercus</i>	6
<i>Thestor Ballus, mauritanicus</i>	276, 280
<i>Tinea angustipennis</i> , 131; <i>nigripunctella</i>	7
<i>Trigonodes obstans</i>	127
<i>Trochilium chrysidiforme</i>	28
<i>Vanessa Antiopa, cardui</i> , 25; <i>polychloros</i> , 221; <i>urticae</i>	244
<i>Xanthia ocellaris</i>	263
<i>Xenolechia aethiops</i>	161
<i>Xylophasia scolopacina</i>	6

NEUROPTERA.

<i>Adicella reducta</i>	34, 112, 237, 248
<i>Aeschna mixta</i>	149, 264
<i>Agrion caeruleum</i> , <i>Lindenii</i> , 150; <i>mercuriale</i>	87, 150, 213
<i>Apatania arctica</i> , 153; <i>fimbriata</i> , 154; <i>muliebria</i> , 10, 153; <i>stigmatella</i> , <i>Wallengreni</i>	153
<i>Ascalaphus ictericus</i>	33
<i>Beræa articularis</i>	236
<i>Bubopsis agrioides</i>	33, 130
<i>Chrysopa Geni</i> , 33; <i>tenella</i>	237, 248
<i>Cyrnus flavidus</i>	35
<i>Dilar meridionalis, nevadensis</i>	130
<i>Diplectrona felix</i>	35, 112, 237
<i>Ectopsocus Briggsi</i>	238, 288

	PAGE
<i>Gomphus similimus</i>	34
<i>Hemerobius atrifrons, concinnus</i> , 237; <i>quadrifasciatus</i>	36
<i>Holocentropus picicornis</i>	112
<i>Hydroptila forcipata</i> , 35, 236; <i>MacLach-</i> <i>lani</i> , 236; <i>occulta</i>	36
<i>Ischnura Graellsii</i> , 149; <i>pumilio</i>	186, 213
<i>Ithytrichia violacea</i> (sp. n.), <i>Morton</i> ...	283
<i>Lestes Dryas</i> , 150, 264; <i>virens</i>	150
<i>Leuctra albida, geniculata, Handlirschi</i> , <i>hippopus, Klapálecki, nigra</i>	256
<i>Limnophilus hirsutus</i>	35, 266
<i>Mantispa perla</i> , 130; <i>styriaca</i>	36
<i>Megalomus pyraloides</i>	33
<i>Micropterna testacea</i>	36
<i>Myrmeleon nemausensis</i>	130
<i>Nothochrysa stigmatica</i>	33
<i>Oecetis testacea</i>	35
<i>Oxyethira falcata</i> , 35, 236; <i>simplex</i>	36
<i>Palpares hispanus</i>	33, 120
<i>Panorpa meridionalis</i>	120
<i>Phacopteryx brevipennis</i>	185
<i>Platynemus latipes</i>	140
<i>Plectrocnemia brevis</i> , 237; <i>geniculata</i> , 34, 112	
<i>Polycentropus Kingi</i>	34
<i>Psychopsis Marshalli</i> (sp. n.), <i>McLach</i>	284
<i>Pyrrhosoma tenellum</i>	36, 214
<i>Setodes interrupta</i>	237
<i>Sympetrum flaveolum, meridionale</i> , 148; <i>scoticum</i>	265
<i>Sympycna fusca</i>	34, 160
<i>Thaumatozona inopinata</i>	29
<i>Tinodes assimilis</i> , 35, 113, 265; <i>aureola</i> , <i>unicolor</i>	237
<i>Trienodes conspersa</i>	212, 237

ORTHOPTERA.

<i>Gavalidium crocodilus</i>	216
<i>Gomphocerus rufus</i>	9
<i>Panchlora exoleta</i>	247
<i>Scelimena harpago</i>	216

ADDITIONS TO THE BRITISH INSECT FAUNA BROUGHT FORWARD IN THIS VOLUME.

LEPIDOPTERA.	PAGE
SPECIES.	
<i>Coleophora milvipennis</i> , <i>Zell.</i>	79

COLEOPTERA.	
GENERA.	
<i>DIASTICTUS</i>	235
<i>GYNANDROPTHALMA</i>	281
<i>LÆMOSTENUS</i>	216

SPECIES.	
<i>Diastictus vulneratus</i> , <i>Sturm</i>	253
<i>Gynandrophthalma affinis</i> , <i>Hellw.</i>	281
<i>Læmostenus complanatus</i> , <i>Dej.</i>	216

DIPTERA.	
SPECIES.	
<i>Borborus notabilis</i> , <i>Coll.</i>	55
<i>Ceratophyllus Gareii</i> , <i>Boths.</i>	225
<i>Walkerii</i> , „	225
<i>Ceromasia Wulpri</i> , <i>B. and B.</i>	227
<i>Hyalurgus lucidus</i> , <i>Mg.</i>	110
<i>Limosina Halidayi</i> , <i>Coll.</i>	58
<i>mirabilis</i> , „	59
<i>Sphærocera eximia</i> , „	57
<i>Theriopectes luridus</i> , <i>Fall.</i>	110

HEMIPTERA.	PAGE
SPECIES.	
<i>Limotettix stactogala</i> , <i>Amyot.</i>	215
<i>Pseudophleps Waltlii</i> , <i>H.-S.</i>	80
<i>Stictocoris flaveola</i> , <i>Boh.</i>	5

HYMENOPTERA.	
SPECIES.	
<i>Microgaster suffolciensis</i> , <i>Morley</i>	4
<i>Nyxeophilus corsicus</i> , <i>Marshall</i>	173
<i>Odynerus bifasciatus</i> , <i>Linn.</i>	106
<i>Probolus concinnus</i> , <i>Werm.</i>	54

NEUROPTERA.	
SPECIES.	
<i>Leuctra albida</i> , <i>Kempny</i>	256
<i>Handlirschi</i> , „	256
<i>hippopus</i> , „	256
<i>Klapálecki</i> , „	256
<i>nigra</i> , <i>Oliv.</i> ?	256
(All more or less provisional).	

LIST OF NEW GENERA AND SPECIES, &c., DESCRIBED
IN THIS VOLUME.

LEPIDOPTERA.		PAGE
GENUS.		
<i>PTHORIMÆA</i> , <i>Meyrick</i>		108
SPECIES.		
<i>Acontia gephyrias</i> , <i>Meyrick</i> , <i>Aden</i>		175
<i>Argyria holocrossa</i> , " "		178
<i>Grammodes schematica</i> , " "		175
<i>Palæomiera calliplaca</i> <i>Queensland</i>		60
<i>Platyptilia leucorrhyncha</i> , <i>Switzerland</i>		217

COLEOPTERA.

<p>GENERA.</p>	
CACCOTHRYPTUS , <i>Sharp</i>	63
MANDERSIA , "	62
<p>SPECIES.</p>	
<i>Cacothryptus compactus</i> , <i>Sharp, Borneo</i>	63
<i>Cyphoniceus orientalis</i> , " "	63
<i>Mandersia scymnoides</i> , " <i>Shan States</i>	62

DIPTERA.

SPECIES.	
Borborus notabilis, <i>Coll., England</i>	55
Ceratophyllus Garei, <i>Roths., "</i>	235
Walkeri, <i>" "</i>	235
Limosina Halidayi, <i>Coll.,</i>	58
mirabilis, <i>" "</i>	59
Sphærocera eximia, <i>" "</i>	57

HEMIPTERA.		PAGE
GENERA, &c.		
AMORPHOCOCCUS, <i>Green</i>	.....	261
ANOMALOCOCCUS, "	.....	261
GEOCOCCUS, "	.....	262
NEWTREADIA, "	.....	284
SPECIES.		
Amorphococcus mesuæ, <i>Green, Ceylon</i>	...	261
Anomalococcus cremastogastri, " "	...	261
Geococcus radicum, " "	...	262
Nasacoris ephedrae, <i>Bouter, Spain</i>	.....	103
Piezostethus terricola, " "	.....	102

HYMENOPTERA.

SPECIES.
Astatus massiliensis, *Morice, Marseilles* 106
pelops, „ *Greece* ... 104
Microgaster suffolciensis, *Morley,*
England 4

NEUROPTERA.

SPECIES.
Ithytrichia violacea, *Morton, Assam*..... 283
Psychopsis Marshalli, *McLachlan*,
Mashonaland 234

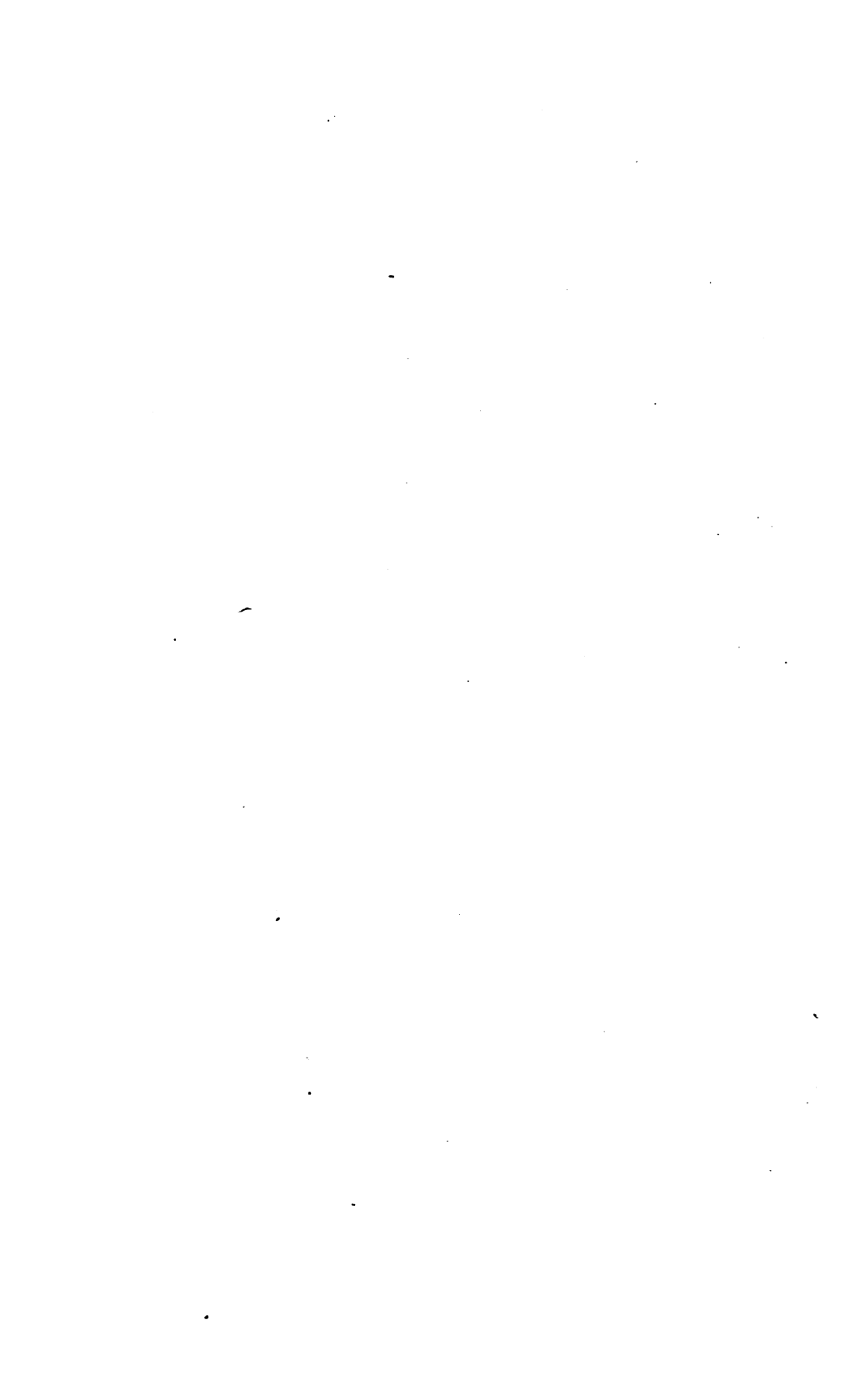
EXPLANATION OF PLATES.

Plate i—See page 2. Plate iii—See page 157
 „ ii— „ „ 101. „ iv— „ „ 225

ERRATUM.

Page 155, top line, for "fringe-shaped" read "finger-shaped."





595.705

E615

vol 38

1902

